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PITCAIRNIA

The following synopsis of Pitcairnia is long overdue, especially as there is little hope of publishing it as part of a monograph in the near future. The last complete treatment was that of Mez in the "Pflanzenreich" in 1935 with some 183 species. Since then, over 40 species either have been transferred to Puya or reduced outright and more than 100 new species have been added.

In preparing the key, I have not tried to make it taxonomic, although it approaches that state in places. Rather I have tried to produce something that would give accurate and rapid identifications. This is not easy with the best material and involves mounting the sepals to show their shape when unrolled and dissecting the ovary to ascertain the type of appendage on the ovule. The worst material, which unfortunately involves several unicate types, must have each species entered in several places in the key in order to cover all contingencies.

On the other hand, geographic correlations have proved quite helpful. For instance primitive types with compound inflorescences are not found in Mexico, while advanced types with deciduous leaves predominate there in response to a strong dry season but are absent in the West Indies. Subgenus Pitcairnia centers in the northern Andes while in the Amazon and Orinoco drainages it is almost wholly replaced by subgenus Pepinia.

The species in the text are in roughly taxonomic order by subgenera, but ignorance of the type of ovule-appendage makes the position of several conjectural. I believe that this is the basic division of the genus and that the broadly alate ovule is the more primitive, though this last is difficult to prove.

The line between Puya and Pitcairnia subgenus Pepinia is sometimes difficult to draw, so I am retaining P. ferruginea and P. nana in Pitcairnia on the basis of their slightly inferior ovaries and P. mirabilis on account of its somewhat zygomorphic flowers. They might equally well go in Puya on account of their strongly twisted petals in age, but there is no point in changing the status quo unless a definite improvement is gained thereby.

1. Inflorescence compound (sometimes normally simple inflorescences develop 1 or 2 lateral branches and such should be sought below if not found here).....Subkey I
1. Inflorescence simple.
 2. Floral bracts ample, covering most or all of the flower just before anthesis (unknown in P. quesnelloides); leaves persistent, usually petiolate; pedicels mostly short and stout
Subkey II

2. Floral bracts narrow or small, exposing most or all of the flower.
3. Larger leaf-blades deciduous along a straight transverse line, grass-like, almost never petiolate; plants evidently of a strongly xerophytic habitat.....Subkey III
3. Larger leaf-blades (and all others) persistent, often petiolate; plants of a more mesophytic habitat.
4. Leaf-blades narrowed at base to a definite petiole. Subkey IV
4. Leaf-blades little if at all narrowed at base, not definitely petiolate.
5. Leaf-blades serrate at least in part.....Subkey V
5. Leaf-blades entire throughout.....Subkey VI

SUBKEY I

1. Leaf-blades (or the larger if dimorphic) uniformly spinose-serrate or serrulate (unknown in P. platystemon), persistent
2. Ovules and seeds alate with the appendage not produced at base or apex (not known in P. viridis), species of the Amazon and Orinoco drainages and two (P. ferruginea and P. viridis) of the central Andes. Pl. I, fig. 1.
3. Leaf-blades 90 mm wide; flowers reflexed. Venezuela.
 1. P. agavifolia
3. Leaf-blades not over 75 mm wide.
 4. Sepals densely ferruginous- or brown-lepidote, obtuse.
 5. Sepals ferruginous-lepidote, 12-45 mm long; inflorescence usually ample. Ecuador, Peru, Bolivia.
 34. P. ferruginea
 5. Sepals brown-lepidote, 12 mm long; inflorescence pseudo-simple with branch-buds in the axils of the lower bracts. Peru.....35. P. viridis
 4. Sepals whitish-lepidote or glabrous.
 6. Sepals 40-50 mm long; petals naked.
 7. Floral bracts minute, much shorter than the 20-30 mm pedicels; flowers pendent-secund. British Guiana, Surinam.....2. P. nuda
 7. Floral bracts exceeding the 5-12 mm pedicels; flowers suberect.
 8. Leaf-blades covered beneath with cinereous scales. Venezuela.....3. P. wurdackii
 8. Leaf-blades glabrous on both sides. Colombia.
 4. P. mituensis
 6. Sepals 13-35 mm long.
 9. Primary bracts equaling or exceeding the sterile bases of the branches.
 10. Flowers strict; branches 5-6 cm long, simple; sepals 14 mm long. Venezuela.....5. P. kunhardtiana
 10. Flowers spreading; branches 10-35 cm long.
 11. Inflorescence bipinnate; sepals acute, 35 mm long. Venezuela, Colombia.....6. P. bulbosa

11. Inflorescence tripinnate; sepals obtuse, 20 mm long.
Colombia.....7. P. heliophila
9. Primary bracts shorter than the sterile bases of the
branches.
12. Flowers sessile; sepals acute, 15-18 mm long.
Venezuela.....8. P. armata
12. Flowers distinctly pedicellate.
13. Flowers pendent-secund.
14. Floral bracts 8 mm long, exceeding the short pedi-
cels; leaf-blades wholly glabrous. Venezuela.
9. P. breweri
14. Floral bracts 4 mm long, much shorter than the pedi-
cels; leaf-blades cinereous-lepidote beneath.
Surinam.....10. P. geyskesii
13. Flowers ascending to spreading, not at all secund.
15. Pedicels ascending; sepals abruptly acute. Venezuela
11. P. pruinosa
15. Pedicels stiffly spreading; sepals acuminate.
Venezuela, Colombia, Brazil.....12. P. patentiflora
2. Ovules and seeds bicaudate or subulate with the appendage
more extended at the ends than at the side. Chiefly
Andean South America and West Indies. Pl. I, figs. 2, 3.
16. Sepals echinate or tuberculate, 27-45 mm long.
17. Floral bracts acuminate, nearly equaling to exceeding the
10-30 mm pedicels; sepals 35-45 mm long. Colombia.
44. P. echinata
17. Floral bracts apiculate, 5 mm long; pedicels 10 mm long;
sepals 27 mm long. Venezuela.....45. P. tuberculata
16. Sepals not more than lepidote.
18. Inflorescence pseudo-simple with branch-buds in the lower
bracts, few-flowered; sepals 12 mm long, brown-lepidote.
Peru.....35. P. viridis
18. Inflorescence obviously branched.
19. Petals yellow, cream or green.
20. Pedicels 10 mm long; petals appendaged. Hispaniola.
232. P. samuelssonii
20. Pedicels 15-23 mm long; petals naked.
21. Sepals 8 mm wide, asymmetric; floral bracts about half
as long as the pedicels. Peru.....46. P. puyoides
21. Sepals 4.5 mm wide; floral bracts much more than half
as long as the pedicels. Bolivia..47. P. platystemon
19. Petals red, appendaged.
22. Pedicels 20-25 mm long, not exceeding the lower floral
bracts. Jamaica.....233. P. bromeliifolia
22. Pedicels not over 15 mm long.
23. Leaf-blades homomorphic, 10-20 mm wide, the spines to 3
mm long; sepals abruptly acute or obtuse. Puerto
Rico, Lesser Antilles.....234. P. angustifolia
23. Leaf-blades dimorphic, mostly more than 20 mm wide.
24. Leaf-blades 10 mm wide; inflorescence few-branched.
Dominican Republic.....235. P. fuertesii
24. Leaf-blades 25-40 mm wide.

25. Sepals 25 mm long; larger leaf-blades scarcely narrowed at base. Lesser Antilles....236. P. gracilis
25. Sepals 15-18 mm long; larger leaf-blades more or less petiolate.
26. Sepals densely and persistently pale-lepidote. Peru.
48. P. pulverulenta
26. Sepals soon glabrous. Peru, Bolivia.
49. P. paniculata
1. Leaf-blades only partially spinose-serrate or serrulate or else entire.
27. Sepals obtuse or rounded and apiculate; ovules or seeds mostly with an apical appendage (broadly winged in P. killipiana and unknown in P. lechleri and P. verrucosa).
28. Leaves wholly entire, the blades all persistent.
29. Pedicels 40 mm long; leaves petiolate; sepals verrucose. Colombia.....50. P. verrucosa
29. Pedicels 5-19 mm long.
30. Lateral branches only 2 cm long; inflorescence narrowly thyrsoid. Peru.....51. P. ruiziana
30. Lateral branches much longer.
31. Racemes much longer than their peduncles, lax; sepals 33 mm long. Colombia.....36. P. killipiana
31. Racemes no longer than their peduncles; sepals 15-20 mm long.
32. Plant 2 m high; leaf-blades 40 mm wide. Colombia, Ecuador.....52. P. dendroidea
32. Plant 7 dm high; leaf-blades 18 mm wide. Dominican Republic.....237. P. jimenezii
28. Leaves partially spinose-serrate or serrulate.
33. Leaf-blades (the larger ones) deciduous along a straight transverse line; pedicels 5-7 mm long; petals appendaged
34. Floral bracts exceeding at least the lower pedicels; sepals 12 mm long. Peru.
35. Leaves all alike; blades to 9 mm wide.....53. P. rigida
35. Leaves dimorphic; blades to 20 mm wide...54. P. lechleri
34. Floral bracts all much shorter than the pedicels.
36. Leaves all alike; sepals 11-15 mm long. Peru, Bolivia.
55. P. inermis
36. Leaves dimorphic; sepals 22 mm long. Colombia.
56. P. arenicola
33. Leaf-blades all persistent; pedicels 4-30 mm long.
37. Leaf-blades long-spreading-spinose at base, 30-40 mm wide; inflorescence amply bipinnate. Colombia, Ecuador
38. Pedicels 15 mm long.....57. P. commixta
38. Pedicels not over 7 mm long.....58. P. lehmannii
37. Leaf-blades (larger) not prominently spinose at base (or not over 22 mm wide), 8-32 mm wide; inflorescence depauperate-compound.
39. Pedicels 15-30 mm long; sepals 20-30 mm long.
40. Leaves all alike. Jamaica.....238. P. platyphylla
40. Leaves dimorphic.
41. Petals naked. Argentina.....59. P. oranensis

41. Petals appendaged. Peru, Bolivia, Brazil.
60. P. subpetiolata
39. Pedicels 4-14 mm long.
42. Leaf-blades 20-35 mm wide, petiolate or subpetiolate.
43. Sepals 27 mm long; scape-bracts nearly all remote.
Argentina.....59. P. oranensis
43. Sepals 10-18 mm long.
44. Leaves spreading-spinose at base. Peru.
61. P. truncata
44. Leaves finely serrulate at most. Argentina.
62. P. chiriguana
42. Leaf-blades 8-18 mm wide, slightly if at all narrowed
at base.
45. Petals yellow or cream; sepals 21 mm long; flowers
finally recurved. Hispaniola...232. P. samuelssonii
45. Petals red; sepals 12-20 mm long.
46. Petals naked or with 2 minute oblique calli; sepals
12 mm long. Peru.....63. P. tarapotensis
46. Petals bearing a large scale at base; sepals 14-20 mm
long.
47. Sepals 20 mm long. Dominican Republic.
237. P. jimenezii
47. Sepals 14-16 mm long. Cuba.....239. P. cubensis
27. Sepals acute or acuminate.
48. The sepals 30-50 mm long.
49. Sepals echinate with stipitate-stellate trichomes.
Colombia.....44. P. echinata
49. Sepals not more than lepidote or verruculose.
50. Leaf-blades petiolate, persistent, 50-55 mm wide;
pedicels 20 mm long. Colombia.
51. Sepals 38 mm long; pedicels biangulate, exceeding the
persistent floral bracts.....64. P. chocoensis
51. Sepals 50 mm long; pedicels terete, shorter than the
deciduous floral bracts.....65. P. haughtii
50. Leaf-blades only slightly narrowed toward base, 15-30 mm
wide.
52. Racemes dense; floral bracts narrowly lanceolate;
larger leaf-blades deciduous. Colombia.
66. P. megasepala
52. Racemes lax; floral bracts broad.
53. Leaf-blades trimorphic, the largest deciduous, entire.
Colombia.....67. P. trimorpha
53. Leaf-blades apparently all alike, persistent, serrulate
especially toward base; sepals verruculose.
Colombia, Ecuador.....68. P. poortmanii
48. The sepals 9-25 mm long.
54. Floral bracts equaling or exceeding the lower pedicels.
55. Petals white, yellow or green; sepals 12-22 mm long.
56. Sepals 12-15 mm long; floral bracts ample, imbricate
before anthesis, then deciduous. Colombia.
69. P. kniphofioides
56. Sepals 21-22 mm long; floral bracts persistent.

57. Lower floral bracts lanceolate, about equaling the sepals. Colombia.....70. P. tolimensis
57. Lower floral bracts broadly ovate, at most equaling the pedicels. Bolivia.....47. P. platystemon
55. Petals red (uncertain in P. ulei, but the lower floral bracts narrow and about equaling the pedicels).
58. Leaves all alike or nearly so.
59. Sepals 10-16 mm long.
60. Panicle ample; leaf-blades 13-19 mm wide. Venezuela, Trinidad.....71. P. integrifolia
60. Panicle depauperate; leaf-blades 10 mm wide. Cuba.
239. P. cubensis
59. Sepals 18-25 mm long.
61. Ovary only 1/3 superior; panicle depauperate, subdense with ascending branches; sepals 25 mm long. Brazil.
248. P. ulei
61. Ovary 1/2-3/4 superior.
62. Pedicels 20-25 mm long. Jamaica.
233. P. bromeliifolia
62. Pedicels 10-15 mm long.
63. Floral bracts elliptic, apiculate. Peru.
72. P. cassapensis
63. Floral bracts narrow, acuminate.
64. Inflorescence amply paniculate; floral bracts mostly shorter than the pedicels. Brazil.
249. P. anthericoides
64. Inflorescence few-branched; floral bracts mostly exceeding the pedicels.
65. Leaves dilated above the sheath; sepals 19 mm long. Venezuela.....73. P. moritziana
65. Leaves not dilated above the sheath; sepals 25 mm long. Puerto Rico (?), Lesser Antilles.
240. P. latifolia
58. Leaves strongly dimorphic.
66. Primary bracts about half as long as the axillary branches and much exceeding their short sterile bases. Peru.....74. P. cuzcoensis
66. Primary bracts several times shorter than the axillary branches and usually shorter than their sterile bases
67. Scape 2-3 mm in diameter; foliaceous leaves not over 5 dm long; plant to 5 dm high. Colombia.
75. P. schultzei
67. Scape stouter; foliaceous leaves to 7 dm long or more; plant over 1 m high.
68. Larger leaf-blades deciduous. Peru.
76. P. vargasiana
68. Larger leaf-blades persistent.
69. Smaller leaf-blades spiniform. Panama.
186. P. chiriquensis
69. Smaller leaf-blades with an entire filiform flexuous apical half. Venezuela, Trinidad.
71. P. integrifolia

54. Floral bracts all shorter than the pedicels.
70. Petals yellow, green or cream; pedicels to 25 mm long; ovary over 1/2 superior.
71. Floral bracts broadly ovate. Bolivia.
47. P. platystemon
71. Floral bracts narrowly triangular. Costa Rica.
77. P. halophila
70. Petals red or rarely blue (uncertain in P. ulei, but the pedicels only 8 mm long and the ovary only 1/3 superior).
72. Panicle depauperate, few-branched.
73. Pedicels to 8 mm long; ovary 1/3 superior. Brazil.
248. P. ulei
73. Pedicels 15-30 mm long; ovary 1/2-2/3 superior.
74. Leaves all alike, the blades 18-32 mm wide. Jamaica.
238. P. platyphylla
74. Leaves dimorphic, the larger blades only 11 mm wide. Guatemala.....187. P. flagellaris
72. Panicle ample, much branched.
75. Sepals and ovary echinate; stamens exserted. Colombia.
78. P. exserta
75. Sepals and ovary not more than lepidote.
76. Ovules and seeds winged; pedicels straight, spreading, 3-4 times longer than the floral bracts. Colombia, Venezuela, Brazil.....12. P. patentiflora
76. Ovules and seeds caudate to apiculate; pedicels mostly curved.
77. Sepals 9-17 mm long.
78. Inflorescence amply 3-pinnate; pedicels 5-7 mm long; leaves all alike; sepals 9-12 mm long. Costa Rica
188. P. valerii
78. Inflorescence not more than 2-pinnate or the pedicels 10-15 mm long; leaves mostly dimorphic.
79. Floral bracts nearly equaling the pedicels, lanceolate; leaves alike with blades 13-19 mm wide or the reduced ones with soft entire filiform apices Venezuela, Trinidad.....71. P. integrifolia
79. Floral bracts not much more than half as long as the pedicels or less.
80. Larger leaf-blades 25-35 mm wide.
81. Sepals densely and persistently pale-lepidote. Peru.....48. P. pulverulenta
81. Sepals soon glabrous. Peru, Bolivia.
49. P. paniculata
80. Larger leaf-blades to 15 mm wide.
82. Branches suberect; petals bearing a scale at base Ecuador.....79. P. devansayana
82. Branches spreading; petals naked or with 2 oblique calli. Peru.....63. P. tarapotensis
77. Sepals 18-25 mm long.
83. Leaf-blades 80 mm wide; inflorescence 4-pinnate; sepals green. Colombia.....80. P. diffusa

83. Leaf-blades 12-35 mm wide; inflorescence 2-3-pinnate
 84. Largest pedicels 15-18 mm long; leaf-blades to 35 mm wide. Bolivia.....81. P. multiramosa
 84. Largest pedicels 9-13 mm long.
 85. Ovary 3/4 to almost wholly superior; leaf-blades 22-35 mm wide.
 86. Leaf-blades furfuraceous beneath; petals naked. Bolivia.....82. P. odontopoda
 86. Leaf-blades not conspicuously furfuraceous beneath; petals appendaged. Peru, Bolivia. 49. P. paniculata
 85. Ovary only about 1/2 superior; leaf-blades 12-30 mm wide.
 87. Leaf-blades to 12 mm wide; ovules very short-caudate. Brazil.....249. P. anthericoides
 87. Leaf-blades 20-30 mm wide.
 88. Leaves petiolate; petals naked. Bolivia. 83. P. divaricata
 88. Leaves not petiolate; petals appendaged. Lesser Antilles.....236. P. gracilis

SUBKEY II

1. Scape very short or none; inflorescence short.
 2. Sepals carinate, 35-40 mm long; leaf-blades linear-triangular Bolivia.....37. P. nana
 2. Sepals ecarinate, 15-20 mm long.
 3. Plant caulescent; leaf-blades linear, 5-10 mm wide. Panama, Peru.....84. P. apelandriflora
 3. Plant stemless; leaf-blades oblong-spatulate, 30 mm wide. Mexico.....189. P. tabuliformis
 1. Scape well developed (unknown in P. poeppigiana, but the inflorescence elongate).
 4. Sepals not over 15 mm long. Colombia.
 5. Leaves dimorphic; floral bracts quickly deciduous; scape-bracts shorter than the upper internodes. 69. P. kniphofioides
 5. Leaves uniform, entire; floral bracts persistent; scape-bracts all longer than the internodes.
 6. Floral bracts concolorous, straight; seeds long-caudate. 85. P. capitata
 6. Floral bracts bicolorous, the upper part strongly reflexed; ovules obtuse.....86. P. guzmanioides
 4. Sepals 18-75 mm long.
 7. Ovary 3/4 inferior, subsessile; capsule indehiscent; ovules winged; floral bracts deciduous, unknown. Colombia. 13. P. quesnelioides
 7. Ovary 1/2 inferior or less.
 8. Sepals exceeding at least the upper floral bracts.
 9. Floral bracts rounded, obtuse or mucronulate, persistent.
 10. Flowers slenderly pedicellate; sepals obtuse, 40 mm long; leaf-blades entire. Colombia.....87. P. archeri

10. Flowers sessile; sepals acute, 25 mm long; leaf-blades serrate. Peru.....88. P. poeppigiana
9. Floral bracts acute or acuminate, deciduous in some species.
11. Sepals 60 mm long, linear-lanceolate, uncinata. Colombia.....89. P. macranthera
11. Sepals 20-37 mm long.
12. Inflorescence lax toward base.
13. Sepals oblong, rounded and apiculate; floral bracts even, coriaceous. British Honduras, Guatemala, Mexico.....90. P. recurvata
13. Sepals elliptic, obtuse, asymmetric; floral bracts nerved, subchartaceous. Central America, Guiana, Venezuela, Colombia.....90. P. maidifolia
12. Inflorescence dense throughout.
14. Posterior sepals broadly alate-carinate; flowers subsessile; inflorescence ellipsoid, 8 cm long; leaf-blades 20 mm wide. Peru.....91. P. sandemanii
14. Posterior sepals not alate or if somewhat so (? P. sceptriformis) then the flowers slenderly pedicellate.
15. Floral bracts subcoriaceous, persistent.
16. Sepals 20-22 mm long, pale-lepidote; leaf-blades 20-35 mm wide. Lesser Antilles....241. P. spicata
16. Sepals 37 mm long, brown-lanate; leaf-blades 90 mm wide. Colombia.....92. P. maritima
15. Floral bracts membranaceous, more or less deciduous.
17. Flowers subsessile; inflorescence 7 cm long. Peru. 93. P. ferreyrae
17. Flowers slenderly pedicellate for 3-8 mm; inflorescence 20-60 cm long.
18. Sepals carinate; inflorescence glabrous. Peru. 94. P. sceptriformis
18. Sepals ecarinate; inflorescence flocculose, often secund-flowered. Costa Rica to British Guiana and Bolivia.....95. P. brittoniana
8. Sepals completely covered by the floral bracts.
19. Floral bracts with divergent to spreading apices.
20. Leaf-blades elliptic to obovate-lanceolate, only 3-4 times as long as wide; sepals acuminate.
21. Leaf-blades 10-14 cm wide, apiculate. Colombia, Ecuador.....96. P. nigra
21. Leaf-blades 5 cm wide, acuminate. Ecuador. 97. P. pulchella
20. Leaf-blades lanceolate to linear, much more than 4 times as long as broad.
22. Flowers reflexed and the triangular acuminate floral bracts deciduous after anthesis; pedicels 8-10 mm long. Colombia.....98. P. brongniartiana
22. Flowers remaining erect and floral bracts imbricate after anthesis.
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23. Pedicels 10 mm long, slender, ferruginous-tomentulose.
"Guatemala". (Cultivation)...191. P. longibracteata
23. Pedicels very short to almost none, though often slender.
24. Floral bracts serrate, 10 cm long; sepals narrowly triangular, 40 mm long. Colombia, Ecuador.
99. P. brunnescens
24. Floral bracts entire.
25. Petals puberulent outside, orange; remainder of the inflorescence densely ferruginous-lepidote.
Colombia.....100. P. barrigae
25. Petals glabrous.
26. Floral bracts membranaceous, bladeless; inflorescence obtuse. Mexico.....192. P. matudae
26. Floral bracts subcoriaceous or chartaceous.
27. Petioles entire.
28. Leaf-blades entire; inflorescence subcylindric; floral bracts with a distinct apical blade.
Central America.....193. P. wendlandii
28. Leaf-blades serrulate; inflorescence clavate; floral bracts without a distinct apical blade.
Peru.....101. P. clavata
27. Petioles spinose-serrate.
29. Sepals linear-lanceolate, acute, 32-39 mm long.
Colombia.....102. P. squarrosa
29. Sepals oblong, truncate or broadly acute and apiculate, 25-30 mm long.
30. Floral bracts with a narrowly triangular divergent blade, red-purple, red or yellowish.
Costa Rica to Colombia.....103. P. atrorubens
30. Floral bracts acute without a distinct blade, only slightly divergent, pale green. Ecuador.
104. P. campii
19. Floral bracts straight toward apex, usually strict and closely imbricate but lax in P. elongata and spreading in P. maidifolia.
31. Sepals 75 mm long; flowers not imbricate nor concealing the rhachis but the apical sterile bracts doing so.
Colombia, Ecuador.....105. P. elongata
31. Sepals 18-50 mm long.
32. Leaves spinose-serrate either along the petiole or the blade.
33. Floral bracts corrugated, soon disintegrating to a fine mesh of fibers; sepals broad, rounded, 40 mm long. Colombia, Ecuador.....106. P. bakeri
33. Floral bracts even or finely nerved but not corrugated
34. Leaf-blades 75-125 mm wide.
35. Sepals 25 mm long, oblong, abruptly acute. Peru.
88. P. poeppigiana
35. Sepals 45-50 mm long.
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36. Leaf-blades oblanceolate, to 125 mm wide; sepals broadly acute and apiculate. Colombia, Panama, Costa Rica.....107. P. oblanceolata
36. Leaf-blades lanceolate or linear-lanceolate, 75-100 mm wide; sepals acuminate. Colombia.
37. Pedicels very stout; leaves all alike. 108. P. arcuata
37. Pedicels slender; leaves dimorphic. 109. P. fosteriana
34. Leaf-blades 30-55 mm wide.
38. Petiole entire; leaf-blade serrate toward apex. Guatemala.....194. P. macrochlamys
38. Petiole serrate; blade entire.
39. Flowers slenderly pedicellate.
40. Sepals oblong, obtuse and apiculate. Guatemala.....195. P. hemsleyana
40. Sepals narrowly triangular. Peru. 110. P. umbratilis
39. Flowers sessile.
41. Leaf-blades dimorphic. Ecuador.....104. P. campii
41. Leaf-blades all alike.
42. Petals naked. Mexico.....196. P. imbricata
42. Petals appendaged. Guatemala, British Honduras. 197. P. petiolata
32. Leaves entire throughout.
43. Sepals 40 mm long, acuminate, membranaceous, floccose; floral bracts acuminate. Guatemala. 198. P. carioana
43. Sepals 18-30 mm long.
44. Sepals vestite; leaf-blades petiolate.
45. Leaf-blades 25 mm wide; sepals 19 mm long, the posterior alate-carinate. Ecuador. 111. P. hitchcockiana
45. Leaf-blades 50-63 mm wide; sepals 25-28 mm long.
46. Ovary almost wholly superior; petals naked, yellow. Ecuador.....112. P. sceptrigera
46. Ovary about 1/2 superior; petals appendaged, red. Peru.....113. P. asplundii
44. Sepals glabrous or nearly so.
47. Leaves all ending in a stout pungent black subulus; sepals narrowly triangular. Peru. 114. P. subulifera
47. Leaves not modified at apex.
48. Leaf-blades merely narrowed toward base, not petiolate.
49. Floral bracts ovate, acute, the upper ones 37 mm long; inflorescence racemose, lax at base, sepals obtuse. Costa Rica. 199. P. membranifolia
49. Floral bracts foliaceous, 60-80 mm long; inflorescence subcorymbose; sepals acuminate. "Guatemala". (Cultivation).

191. P. longibracteata
 48. Leaf-blades distinctly petiolate.
 50. Floral bracts broadly acute or rounded and apiculate.
 51. Sepals 18 mm long; floral bracts bright purple. Venezuela.....115. P. altensteinii
 51. Sepals 24 mm long; floral bracts reddish yellow. Mexico.....200. P. densiflora
 50. Floral bracts acuminate.
 52. Petals naked; leaf-blades 45 mm wide. Central America or Mexico?.....201. P. ochroleuca
 52. Petals appendaged; leaf-blades 50-85 mm wide. Central America.....193. P. wendlandii

SUBKEY III

1. Petals bearing a scale on the inner side at base. Northern Andes and Brazil, except for P. heterophylla extending to Mexico and P. theae in Costa Rica.
 2. Scape and inflorescence very short. Mexico to Venezuela and Peru.....116. P. heterophylla
 2. Scape (unknown in P. crassa) and inflorescence elongate.
 3. Sepals 30-42 mm long; petals mostly yellow or white (color unknown in P. crassa and P. theae, sometimes red in P. megasepala).
 4. Posterior sepals alate.
 5. Inflorescence dense; plant with a long erect stem. Peru. 117. P. augustii
 5. Inflorescence lax; plant stemless. Colombia. 66. P. megasepala
 4. Posterior sepals not more than carinate.
 6. Floral bracts triangular or lanceolate, acuminate.
 7. Inflorescence cinereous-furfuraceous; scape-bracts much exceeding the internodes, the upper ones 5 cm long. Costa Rica.....202. P. theae
 7. Inflorescence glabrous; scape-bracts slightly shorter than the upper internodes. Ecuador. 118. P. aequatorialis
 6. Floral bracts broadly lanceolate or elliptic, acute or apiculate.
 8. Pedicels slender, 11 mm long, all but the lowest exceeding the floral bracts. Colombia.....67. P. trimorpha
 8. Pedicels 2 mm in diameter, 25 mm long, all shorter than the floral bracts; leaves unknown, species doubtfully belonging in this subkey. Bolivia.....119. P. crassa
 3. Sepals 12-25 mm long.
 9. Pedicels obconic, alate, very short. Colombia. 70. P. tolimensis
 9. Pedicels slenderly cylindrical, not alate.
 10. Sepals emarginate, 12 mm long; pedicels 5 mm long. Peru. 53. P. rigida

10. Sepals acute or acuminate, 14-25 mm long; pedicels 3-20 mm long.
11. Leaf-blades all alike and deciduous, 10 mm wide; plant caulescent, branched; presence of petal-appendage uncertain. Colombia.....120. P. lignosa
11. Leaf-blades dimorphic or at least the inner persistent.
12. Pedicels 10-20 mm long. Brazil.
13. Sepals alate, 16-20 mm long.....30. P. ensifolia
13. Sepals ecarinate, 14 mm long.....250. P. torresiana
12. Pedicels 3-10 mm long. Northern Andes.
14. Inflorescence sparsely flocculose, soon glabrous; leaf-blades 5-10 dm long, 5-12 mm wide. Colombia.
121. P. stenophylla
14. Inflorescence densely and persistently tomentose-lepidote; leaf-blades 3-4 dm long, 15-30 mm wide.
15. Leaf-blades 30 mm wide, narrowly lanceolate, constricted at base. Ecuador.....122. P. pavonii
15. Leaf-blades 15 mm wide, linear, scarcely constricted at base. Colombia to Peru.....123. P. pungens
1. Petals naked.
16. Pedicels not over 2 mm long.
17. Sepals 40-50 mm long.
18. Leaf-blades 35 mm wide; inflorescence corymbiform. Peru.
124. P. billbergioides
18. Leaf-blades 15 mm wide; inflorescence slenderly sub-ellipsoid. Guatemala, Mexico. 203. P. saxicola
17. Sepals not over 30 mm long.
19. Inflorescence lax, at least toward the base.
20. Sepals oblong, rounded and apiculate, 7 mm long. Peru.
125. P. melanopoda
20. Sepals lanceolate, acute or acuminate, 25-28 mm long.
21. Flowers subdistichous; sepals acute; inflorescence lax throughout. Mexico.....204. P. purpusii
21. Flowers many-ranked; sepals acuminate; inflorescence dense toward apex. Honduras, Salvador, Guatemala.
205. P. calderonii
19. Inflorescence dense throughout. Mexico.
22. Blades of the lower scape-bracts equaling the inflorescence; floral bracts covered with a membrane of coalesced scales.....206. P. roseana
22. Blades of the scape-bracts much shorter than the inflorescence; indument of the floral bracts of distinct scales.
23. Scape-bracts lance-triangular, exposing much of the scape.....207. P. micheliana
23. Scape-bracts broadly ovate, ample, concealing the scape.
208. P. cylindrostachya
16. Pedicels 4-30 mm long.
24. Petals 80-100 mm long.
25. Sepals densely vestite; flowers secund, spreading to reflexed. Mexico.
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26. Floral bracts about equaling the pedicels; sepals covered with appressed whitish scales.....209. *P. leprosa*
26. Floral bracts about 4 times as long as the pedicels; sepals ferruginous-lanate.....210. *P. modesta*
25. Sepals glabrous.
27. Sepals acuminate. Andes.
28. Petals yellow; pedicels 5-12 mm long. Peru.
29. Scape 8 mm in diameter; scape-bracts exceeding the internodes; flowers divergent, not secund. 126. *P. lopezii*
29. Scape 5 mm in diameter; scape-bracts shorter than the internodes; flowers spreading to decurved, secund. 127. *P. decurvata*
28. Petals brownish violet; pedicels 20 mm long. Ecuador. 128. *P. violascens*
27. Sepals acute or broadly acute. North America.
30. Petals glabrous, red; scape-bracts entire. Guatemala. 211. *P. tuerckheimii*
30. Petals tomentose-lepidote at apex, white; lower scape-bracts serrate. Mexico.....212. *P. hintoniana*
24. Petals 34-70 mm long.
31. Floral bracts distinctly shorter than some of the pedicels
32. Floral bracts broadly ovate.
33. Pedicels to 23 mm long; flowers rather dense; petals 34 mm long, yellow or green. Bolivia..47. *P. platystemon*
33. Pedicels not over 15 mm long; flowers lax; petals 70 mm long, reddish green. Mexico.....213. *P. mooreana*
32. Floral bracts narrow, acuminate.
34. Pedicels suberect, 10-15 mm long; axis flexuous. Mexico. 214. *P. flexuosa*
34. Pedicels spreading to reflexed.
35. Pedicels not over 15 mm long; flowers secund. Mexico. 215. *P. palmeri*
35. Pedicels 20 mm long; flowers not secund. Peru. 129. *P. fractifolia*
31. Floral bracts equaling or exceeding the pedicels.
36. Lower floral bracts subfoliaceous, much exceeding the flowers. Guatemala.....216. *P. puberula*
36. Lower floral bracts vaginiform, shorter than the flowers.
37. Lower floral bracts serrulate; sepals oblong, rounded and apiculate. Brazil.....31. *P. lima*
37. Lower floral bracts entire.
38. Leaves all entire or some very obscurely serrulate (*P. tillandsioides*).
39. Inflorescence few-flowered, lax; scape-bracts longer or shorter than the internodes; posterior sepals subulate. Mexico.....217. *P. tillandsioides*
39. Inflorescence many-flowered.
40. Scape-bracts shorter than the upper internodes.
41. Leaf-blades 2 mm wide, vestite with linear scales. Bolivia.....130. *P. cardenasii*
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41. Leaf-blades 20 mm wide, densely lepidote beneath.
Peru.....131. P. straminea
40. Scape-bracts all longer than the internodes.
42. Petals red; floral bracts about equaling the pedicels. Brazil.....251. P. decidua
42. Petals white; lowest floral bracts exceeding the sepals. Mexico.....218. P. schiedeana
38. Leaves at least partially spinose-serrate, either on the spiniform blades or on the persistent bases of the foliaceous blades or both together.
43. Pedicels strongly biangulate or alate.
44. Sepals acuminate, 15-18 mm long; flowers strongly secund. Mexico.....219. P. pteropoda
44. Sepals obtuse or truncate, to 40 mm long. Ecuador.
132. P. alata
43. Pedicels terete or faintly angled.
45. Scape very short, exceeded by the persistent leaf-bases; inflorescence elongate, subslax. Mexico.
220. P. micropoda
45. Scape evident, much exceeding the leaf-bases.
46. Scape-bracts distinctly shorter than the upper internodes.
47. Inflorescence dense; floral bracts acute, equaling or slightly exceeding the pedicels; flowers not secund. Brazil.....252. P. glaziovii
47. Inflorescence lax; floral bracts acuminate, about twice the pedicels; flowers secund. Peru.
133. P. scandens
46. Scape-bracts all longer than the internodes.
48. Leaves all alike; plant long-caulescent. Colombia.
120. P. lignosa
48. Leaves dimorphic; plant generally stemless.
49. Posterior sepals alate. Mexico.
50. Sepals acuminate, glabrous; scape-bracts entire.
221. P. karwinskyana
50. Sepals broadly acute or obtuse, lanate; lowest scape-bracts spinose.....222. P. militaris
49. Posterior sepals not more than carinate.
51. Petals yellow; floral bracts exceeding the 5 mm long pedicels. Ecuador.....134. P. lutescens
51. Petals red.
52. Scape-bracts foliaceous, equaling the leaves. Mexico.....223. P. foliacea
52. Scape-bracts short, not at all foliaceous.
53. Sepals densely and persistently lepidote. Mexico.....224. P. sordida
53. Sepals sparsely lepidote or apically barbellate, soon glabrous.
54. Pedicels 5-6 mm long. Andes.
55. Inflorescence dense; sepals 33 mm long; petals 65-70 mm long. Ecuador.
135. P. erratica

55. Inflorescence lax; sepals 22 mm long; petals 40 mm long. Peru.....136. P. acicularis
54. Pedicels 8-15 mm long.
56. Plants caulescent, stoloniferous. Peru.
137. P. riparia
56. Plants stemless, without stolons. Mexico.
57. Flowers strongly spreading-secund; pedicels 15 mm long.....215. P. palmeri
57. Flowers polystichous, scarcely if at all secund, pedicels 8-10 mm long.
58. Floral bracts exceeding all but the uppermost sepals.....225. P. monticola
58. Floral bracts all much shorter than the sepals.....226. P. ringens

SUBKEY IV

1. Floral bracts shorter than the upper pedicels.
2. Sepals 42-60 mm long; pedicels 40-70 mm long; leaves entire. Colombia.
3. Sepals verrucose, obtuse.....50. P. verrucosa
3. Sepals even or nerved, acute or acuminate.
4. Leaf-blades 65-90 mm wide; pedicels 50-70 mm long.
138. P. spectabilis
4. Leaf-blades not over 30 mm wide; pedicels 50-60 mm long.
5. Sepals densely ferruginous-tomentose.....139. P. laxissima
5. Sepals glabrous.....140. P. longipes
2. Sepals not over 35 mm long; pedicels 5-40 mm long.
6. Sepals rounded or blunt or apiculate.
7. Pedicels only 5 mm long; leaf-blades to 95 mm wide. Ecuador.....141. P. elliptica
7. Pedicels 10-40 mm long; leaf-blades 16-70 mm wide.
8. Leaves spinose-serrate on the petioles or the bases of the blades.
9. Scape-bracts all exceeding the internodes; pedicels not over 10 mm long; leaf-blades 35 mm wide; sepals 12-18 mm long. Argentina.....62. P. chiriguana
9. Scape-bracts shorter than the upper internodes; pedicels to 25 mm long; leaf-blades 16-24 mm wide; sepals 20-30 mm long.
10. Floral bracts to 5 mm long; petals naked. Argentina.
59. P. oranensis
10. Floral bracts 10-20 mm long; petals appendaged. Peru, Bolivia, Brazil.....60. P. subpetiolata
8. Leaves wholly entire.
11. Leaf-blades 60-70 mm wide.
12. Pedicels 10-15 mm long; flowers spreading-secund. Mexico.....227. P. chiapensis
12. Pedicels to 40 mm long; flowers ascending, not secund. Colombia.....142. P. tumulicola
11. Leaf-blades 20-30 mm wide.
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13. Pedicels 10-20 mm long; ovary 2/3 superior; ovules caudate. Peru.....143. P. biflora
13. Pedicels 25-35 mm long; ovary 1/4 superior; seeds winged. Colombia.....38. P. alborubra
6. Sepals acute or acuminate.
14. Sepals uncinately recurved; petals yellow or green, naked; flowers erect. Bolivia.....47. P. platystemon
14. Sepals straight or nearly so.
15. Leaf-blades 140 mm wide, broadly oblanceolate; flowers spreading to reflexed, many-ranked, dense; petals white. Colombia.....144. P. multiflora
15. Leaf-blades 17-70 mm wide.
16. Leaves at least partially serrate.
17. Ovary only 1/5 or 1/4 inferior; ovules or seeds caudate. Colombia.
18. Plant stemless; scape-bracts spinose-serrate. 145. P. kalbreyeri
18. Plant caulescent for over 1 m; scape-bracts entire. 146. P. volubilis
17. Ovary 1/2 to 3/4 inferior; ovules or seeds alate.
19. Larger leaf-blades evenly serrulate throughout; inflorescence ferruginous-lepidote. Ecuador. 14. P. harlingii
19. Larger leaf-blades serrate only toward apex.
20. Plant stemless; ovary 3/4 inferior. Colombia, French Guiana, Brazil.....15. P. rubiginosa
20. Plant caulescent; ovary 1/2 inferior. Venezuela. 16. P. epiphytica
16. Leaves all entire.
21. Sepals alate-carinate. Venezuela.....147. P. nubigena
21. Sepals ecarinate.
22. Leaf-blades not over 20 mm wide, linear-lanceolate, long-acuminate.
23. Pedicels reflexed, then curved-ascending; petals appendaged; leaves distichous. Venezuela. 148. P. meridensis
23. Pedicels erect; petals naked; leaves not noticeably distichous. Brazil.....253. P. lancifolia
22. Leaf-blades 30-60 mm wide.
24. Pedicels 9 mm long; flowers strongly secund; leaf-blades linear-lanceolate, soon glabrous. Mexico. 228. P. oaxacana
24. Pedicels 15-25 mm long; flowers scarcely secund; leaf-blades densely brown-flocculose beneath. Colombia.....149. P. bella
1. Floral bracts all equaling or exceeding the pedicels.
25. Sepals 45-75 mm long; leaf-blades 25-200 mm wide.
26. Pedicels 20-60 mm long; leaves entire. Colombia.
27. Leaf-blades oblanceolate, 140 mm wide...150. P. calophylla
27. Leaf-blades linear-lanceolate, 25-50 mm wide.
28. Pedicels to 60 mm long.....139. P. laxissima
28. Pedicels not over 20 mm long.....65. P. haughtii

- . 26. Pedicels not more than 10 mm long; leaves serrate on the petioles.
29. Floral bracts 150 mm long, exceeding the sepals, the upper ones imbricate. Colombia, Ecuador.....105. P. elongata
29. Floral bracts 40-50 mm long, exceeded by the sepals. Colombia.
30. Sepals densely papillose at base; leaf-blade obovate, nearly 200 mm wide.....151. P. sylvestris
30. Sepals even or nerved; leaf-blade elliptic or lance-elliptic, 90-160 mm wide.....152. P. dolichopetala
25. Sepals 10-35 mm long; leaf-blades 16-180 mm wide.
31. Pedicels 4-8 mm long at most.
32. Sepals 10-12 mm long.
33. Scape-bracts densely imbricate; pedicels reflexed after anthesis. Ecuador.....153. P. reflexiflora
33. Scape-bracts shorter than the upper internodes.
34. Leaf-blades broadly elliptic, 95 mm wide. Ecuador. 141. P. elliptica
34. Leaf-blades linear-lanceolate, about 40 mm wide. Colombia.....154. P. semaphora
32. Sepals 15-34 mm long.
35. Ovary $\frac{3}{4}$ inferior; ovules or seeds alate; floral bracts deciduous. Colombia.....13. P. quesnelioides
35. Ovary not more than $\frac{1}{2}$ inferior.
36. Floral bracts much exceeding the lower flowers; leaves unknown, but probably not petiolate. Guatemala. 216. P. puberula
36. Floral bracts all exceeded by the flowers.
37. Leaves wholly entire.
38. Leaf-blades 30-40 mm wide; scape-bracts imbricate. Colombia.
39. Posterior sepals strongly carinate, 28 mm long. 155. P. macarenensis
39. Posterior and anterior sepals ecarinate, 20 mm long. 156. P. guaritermae
38. Leaf-blades 150-180 mm wide.
40. Flowers spreading at anthesis; leaf-blades densely white-lepidote beneath. Brazil....246. P. undulata
40. Flowers erect or divergent at anthesis; leaf-blades glabrous. Peru.....157. P. calatheoides
37. Leaves spinose-serrate on the petioles or on the bladeless sheaths (P. nobilis).
41. Scape-bracts mostly or all spinose-serrate.
42. Blades lanceolate, 80 mm wide. Colombia. 39. P. pectinata
42. Blades linear-lanceolate, 22 mm wide. Ecuador. 158. P. sodiroi
41. Scape-bracts entire.
43. Petioles entire; blades 23 mm wide. Ecuador. 159. P. nobilis
43. Petioles serrate; blades 60-80 mm wide. Colombia.
44. Floral bracts broadly elliptic, apiculate.

160. P. adscendens
44. Floral bracts linear-lanceolate, acuminate.
161. P. sneidernii
31. Pedicels 9-30 mm long.
45. Ovary more than 1/2 inferior; ovules or seeds alate
(unknown in P. leprieurii).
46. Sepals to 35 mm long.
47. Sepals oblong, broadly acute; inflorescence dense.
Colombia.....17. P. cuatrecasana
47. Sepals triangular-ovate, acuminate; inflorescence lax.
Ecuador.....14. P. harlingii
46. Sepals not more than 24 mm long.
48. Blades brown-lepidote beneath; sepals ecarinate.
Colombia, French Guiana, Brazil.....15. P. rubiginosa
48. Blades whitish-lepidote beneath; sepals carinate.
French Guiana.....18. P. leprieurii
45. Ovary not more than 1/2 inferior; ovules or seeds alate or caudate.
49. Leaves entire or minutely serrulate toward apex (P. cyanopetala).
50. Blades 80-180 mm wide.
51. Scape-bracts much shorter than the internodes; blades 180 mm wide, densely white-lepidote beneath. Brazil.
246. P. undulata
51. Scape-bracts exceeding the internodes; blades 80 mm wide, subglabrous. Peru.....162. P. cyanopetala
50. Blades 20-50 mm wide.
52. Flowers all secund; sepals alate-carinate; plant 2 dm high. Mexico.....229. P. secundiflora
52. Flowers not secund; sepals not alate; plants 4-15 dm high.
53. Floral bracts coriaceous; petals yellowish white; leaf-blades white-furfuraceous beneath. Mexico, Guatemala, British Honduras.....190. P. recurvata
53. Floral bracts thin; petals red or purple; leaf-blades soon glabrous. Colombia.....163. P. brachysperma
49. Leaves serrate on the petioles or bases of the blades.
54. Leaf-blades 16-22 mm wide, weakly petiolate; sepals obtuse; ovary only 1/6 inferior. Peru, Bolivia, Brazil.....60. P. subpetiolata
54. Leaf-blades 30-130 mm wide, distinctly petiolate; sepals acute or acuminate, rarely rounded (sometimes in P. sprucei).
55. Ovary about 1/2 inferior; ovules or seeds alate.
56. Inflorescence prostrate on the ground with the flowers upwardly secund; leaf-blades entire; pedicels to 10 mm long. Colombia, Peru.....19. P. corallina
56. Inflorescence erect, the flowers scarcely secund; leaf-blades serrulate toward apex; pedicels 10-30 mm long.
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57. Leaf-blades lanceolate or oblanceolate, 30-90 mm wide, soon glabrous; sepals oblong, broadly acute or rounded; pedicels 10-18 mm long. Colombia, Peru, Brazil.....20. P. sprucei
57. Leaf-blades linear-lanceolate, 35 mm wide, densely white-lepidote beneath; sepals linear-lanceolate, acute; pedicels to 30 mm long. Venezuela.
16. P. epiphytica
55. Ovary only 1/4-1/5 inferior; ovules or seeds caudate.
58. Sepals 12 mm long; leaf-blades 90 mm wide, covered beneath with a brown membrane of scales; scape-bracts entire. Colombia.....164. P. similis
58. Sepals 20-25 mm long.
59. Leaf-blades linear-lanceolate, attenuate, 40-70 mm wide; petals 65 mm long. Panama, Colombia.
145. P. kalbreyeri
59. Leaf-blades elliptic or obovate, abruptly acute, 130 mm wide; petals 100 mm long. Ecuador.
165. P. palmoides

SUBKEY V

1. Ovary distinctly more than half inferior; ovules or seeds alate.
2. Petals lepidote, naked; pedicels 3-5 mm long. Colombia.
21. P. turbinella
2. Petals glabrous.
3. Sepals 40 mm long; petals naked; flowers sessile. Venezuela.....22. P. maguirei
3. Sepals 15-35 mm long; petals appendaged.
4. Flowers sessile.
5. Inflorescence lax; flowers spreading; ovary wholly inferior. Brazil.....23. P. anomala
5. Inflorescence dense; flowers curved ascending; ovary 3/4 inferior. Colombia.....13. P. quesnelioides
4. Flowers distinctly pedicellate for 5-25 mm.
6. Sepals 35 mm long; pedicels 25 mm long. Ecuador.
14. P. harlingii
6. Sepals 15-27 mm long; pedicels 5-10 mm long.
7. Leaf-blades sublinear, 6-13 mm wide; sepals acute. Colombia, Venezuela, Guiana, Brazil..24. P. caricifolia
7. Leaf-blades linear-lanceolate, 20 mm wide; sepals rounded. Guiana.....25. P. incarnata
1. Ovary 1/2 inferior to almost completely superior.
8. Sepals 30-60 mm long.
9. Posterior sepals alate-carinate. Peru.
10. Inflorescence dense; flowers sessile; sepals 30 mm long
91. P. sandemanii
10. Inflorescence lax at base or throughout; flowers pedicellate for 10 mm; sepals 46 mm long.....166. P. eximia
9. Posterior (and anterior) sepals not more than angled-carinate.

11. Ovules or seeds alate.
12. Floral bracts laciniate-spinose; sepals 60 mm long.
Bolivia, Argentina.....40. P. mirabilis
12. Floral bracts entire; sepals 33-40 mm long.
13. Petals red, appendaged; leaf-blades spinose-serrate only toward base. Colombia, Brazil.....26. P. uaupensis
13. Petals pale green, naked; leaf-blades spinose throughout Venezuela.....3. P. wurdackii
11. Ovules or seeds caudate.
14. Sepals obtuse, 20-30 mm long; leaves subpetiolate. Peru, Bolivia, Brazil.....60. P. subpetiolata
14. Sepals acute or acuminate.
15. Petals naked; inflorescence lax; flowers secund-spreading; leaves incompletely known. Mexico.
209. P. leprosa
15. Petals appendaged.
16. Flowers spreading or reflexed; floral bracts broadly lanceolate, acute, 35 mm long, exceeding the pedicels; axis 1 cm in diameter. Bolivia..119. P. crassa
16. Flowers erect or suberect.
17. Floral bracts to 18 mm long, equaling or exceeding the pedicels; inflorescence lax. Panama..230. P. carnea
17. Floral bracts to 70 mm long, shorter than to exceeding the sepals; inflorescence dense. Lesser Antilles.
242. P. albucifolia
8. Sepals 8-29 mm long.
18. Petals naked.
19. Sepals rounded, 8-12 mm long; petals green to pale yellow or white.
20. Inflorescence 5-flowered; flowers secund; sepals densely brown-lepidote. Peru.....35. P. viridis
20. Inflorescence densely many-flowered; flowers not secund; sepals glabrous. Colombia, Ecuador, Bolivia.
167. P. trianae
19. Sepals acute or acuminate, 13-27 mm long.
21. Floral bracts much exceeding the lower flowers; leaf-blades unknown but probably not persistent.
Guatemala.....216. P. puberula
21. Floral bracts all exceeded by the flowers.
22. Leaf-blades serrate throughout; ovules or seeds alate. Venezuela.
23. Pedicels stout, 6 mm long; leaf-blades 90 mm wide.
1. P. agavifolia
23. Pedicels slender, 25 mm long; leaf-blades 12 mm wide.
27. P. ctenophylla
22. Leaf-blades only partially serrate (unknown in P. platystemon) or the ovules or seeds caudate (unknown in P. cuzcoensis) or usually both characters combined.
24. Petals yellow, green, or cream; floral bracts shorter than the pedicels.
25. Sepals uncinately recurved; floral bracts 15-20 mm long. Bolivia.....47. P. platystemon

25. Sepals straight; floral bracts to 12 mm long. Costa Rica.....77. P. halophila
24. Petals red or violet.
26. Scape-bracts all exceeding the internodes; petals light brownish violet. Ecuador...128. P. violascens
26. Scape-bracts shorter than the upper internodes.
27. Leaf-blades oblong, acute; inflorescence glabrous; sepals 21 mm long. Ecuador....168. P. oblongifolia
27. Leaf-blades lanceolate or linear-lanceolate, acuminate; inflorescence more or less vestite; sepals 13-17 mm long.
28. Leaves trimorphic, some reduced to dark broad entire sheaths. Peru.....74. P. cuzcoensis
28. Leaves dimorphic or all alike, none reduced to conspicuous sheaths. Colombia.....75. P. schultzei
18. Petals appendaged.
29. Leaf-blades (or the spiniform ones if dimorphic) spinose-serrate throughout or entire only at the extreme apex (P. lanuginosa).
30. Leaf-blades 90 mm wide; pedicels stout, 6 mm long; flowers recurved. Venezuela.....1. P. agavifolia
30. Leaf-blades 4-32 mm wide.
31. Pedicels 15-30 mm long; leaf-blades 10-32 mm wide.
32. Ovules or seeds with annular appendages, alate.
33. Sepals to 28 mm long; plant stemless; floral bracts about equaling the pedicels. Venezuela.
28. P. filispina
33. Sepals not over 15 mm long; plant with an erect 15 cm high stem; floral bracts much shorter than the upper pedicels. Mexico, Guatemala.....42. P. punicea
32. Ovules or seeds with caudate appendages though the apical part sometimes broad (P. platyphylla).
34. Petals pale yellow; sepals 15-20 mm long. Mexico.
231. P. xanthocalyx
34. Petals red or violet; sepals to 25 mm long.
35. Floral bracts equaling or exceeding the pedicels; petals pale violet; leaf-blades dimorphic. Peru.
169. P. lanuginosa
35. Floral bracts much shorter than the upper pedicels; petals red; leaf-blades usually all alike. Jamaica.
36. Leaf-blades 10-15 mm wide.....233. P. bromeliifolia
36. Leaf-blades to 32 mm wide.....238. P. platyphylla
31. Pedicels 3-11 mm long.
37. Sepals subulate-carinate; pedicels 8 mm long; leaf-blades 8 mm wide. West Indies?.....243. P. glymiana
37. Sepals not at all alate.
38. Petals bright yellow to cream.
39. Floral bracts much exceeding the pedicels; leaf-blades to 24 mm wide. Paraguay.
170. P. paraguayensis
39. Floral bracts shorter than the pedicels; leaf-blades 8-18 mm wide. Hispaniola.....232. P. samuelssonii

38. Petals red.
40. Leaves all alike.
41. Leaf-blades 10-20 mm wide; flowering plant 1-2 m high. Puerto Rico, Lesser Antilles.
234. P. angustifolia
41. Leaf-blades 4 mm wide; flowering plant 55 cm high. Dominican Republic.....244. P. elizabethae
40. Leaves of the fertile rosette dimorphic.
235. P. fuertesii
29. Leaf-blades spinose only at extreme base or apex, or the sheaths only.
42. Petal-appendages a pair of small auricles. West Africa.
261. P. feliciana
42. Petal-appendage a single scale the width of the petal.
43. Scape-bracts equaling or exceeding all of the internodes
44. Lower floral bracts nearly equaling to exceeding the sepals; inflorescence dense. Lesser Antilles.
45. Floral bracts broadly ovate.....241. P. spicata
45. Floral bracts lanceolate.....242. P. albucifolia
44. Lower floral bracts much shorter than the sepals; inflorescence subdense to lax.
46. Petals pale yellow; pedicels 15-20 mm long. Mexico.
231. P. xanthocalyx
46. Petals red; pedicels 4-15 mm long.
47. Leaves dilated above the sheath, all alike. Venezuela.....73. P. moritziana
47. Leaves not dilated above the sheath.
48. Leaf-blades covered beneath with a membrane of white scales. Puerto Rico (?), Lesser Antilles.
240. P. latifolia
48. Leaf-blades sparsely lepidote or glabrous beneath.
49. Inflorescence subdense, many-flowered. Colombia.
171. P. macrobotrys
49. Inflorescence lax, few-flowered. Venezuela.
172. P. orchidifolia
43. Scape-bracts distinctly shorter than the upper internodes.
50. Pedicels 15-30 mm long; sepals abruptly acute or rounded.
51. Sepals 13 mm long, oblong; leaf-blades sparsely lepidote toward base. Brazil.....247. P. egleri
51. Sepals 20-30 mm long, narrowly triangular; leaf-blades densely white-lepidote beneath.
52. Ovary 1/2 superior; leaves all alike. Jamaica.
238. P. platyphylla
52. Ovary 5/6 superior; leaves dimorphic. Peru, Bolivia, Brazil.....60. P. subpetiolata
50. Pedicels 4-10 mm long.
53. Leaf-blades not more than 11 mm wide.
54. Sepals 14-16 mm long. Cuba.....239. P. cubensis
54. Sepals 24 mm long. Brazil.....32. P. platypetala
53. Leaf-blades 15-30 mm wide.

55. Inflorescence densely white-tomentose; leaf-blades imperfectly known, probably not persistent. Peru.
122. P. pavonii
55. Inflorescence sparsely flocculose to glabrous.
56. Leaf-blades lanceolate, 25-50 cm long, 15-25 mm wide
57. Floral bracts elliptic, much shorter than the pedicels; leaf-blades densely appressed-lepidote beneath. Venezuela.....173. P. fendleri
57. Floral bracts lanceolate, acuminate, from shorter to longer than the pedicels; leaf-blades sparsely lepidote to glabrous beneath. Colombia.
75. P. schultzei
56. Leaf-blades linear, 50-100 cm long, 15-20 mm wide. Dominican Republic.
58. Leaves all alike.....237. P. jimenezii
58. Leaves dimorphic.....245. P. domingensis

SUBKEY VI

1. Ovary distinctly more than 1/2 inferior.
2. Seeds or ovules alate; inflorescence minutely white-lepidote; ovary almost wholly inferior. Colombia, Venezuela, Guiana, Brazil.....24. P. caricifolia
2. Seeds or ovules caudate; inflorescence densely pale-flocculose or arachnoid; ovary not more than 2/3 inferior.
3. Sepals 18 mm long, carinate toward base. Ecuador.
174. P. unilateralis
3. Sepals 25 mm long, ecarinate. Brazil.....248. P. ulei
1. Ovary not more than 1/2 inferior.
4. Sepals 34-45 mm long; petals appendaged.
5. Pedicels 50-60 mm long; leaf-blades 30 mm wide. Colombia.
6. Sepals densely ferruginous-tomentose.....139. P. laxissima
6. Sepals glabrous.....140. P. longipes
5. Pedicels 6-25 mm long.
7. Axis of the inflorescence 1 cm in diameter; flowers spreading or reflexed. Bolivia.....120. P. crassa
7. Axis of the inflorescence relatively slender; flowers erect to divergent.
8. Petals greenish white; floral bracts broadly ovate; sepals transversely ridged at junction with ovary. Colombia.
41. P. costata
8. Petals red.
9. Floral bracts broadly ovate, slightly exceeding the pedicels; petals lepidote. Colombia.
175. P. lepidopetalon
9. Floral bracts lanceolate; petals glabrous.
10. Inflorescence dense toward apex; floral bracts to 70 mm long. Lesser Antilles.....242. P. albucifolia
10. Inflorescence lax throughout; floral bracts to 18 mm long. Panama.....230. P. carnea
4. Sepals 9-30 mm long or more (P. albucifolia).
11. Petals naked.

12. Sepals rounded at apex, blunt or apiculate.
13. Leaf-blades 4-20 mm wide.
14. Scape-bracts exceeding the internodes.
15. Lower floral bracts serrulate; sepals oblong, 21 mm long. Brazil.....31. P. lima
15. Lower floral bracts entire; sepals 9 mm long. French Guiana.....176. P. pusilla
14. Scape-bracts distinctly shorter than the upper internodes.
16. Floral bracts exceeding the 5 mm long pedicels. Peru. 131. P. straminea
16. Floral bracts much shorter than the 20 mm long pedicels. Venezuela.....29. P. juncooides
13. Leaf-blades 30-60 mm wide.
17. Floral bracts exceeding the pedicels.
18. Sepals broadly elliptic, 26 mm long; leaf-blades 60 mm wide. Guiana, Venezuela, Colombia, Central America. 90. P. maidifolia
18. Sepals oblong; leaf-blades not over 35 mm wide.
19. Inflorescence dense, many-flowered; floral bracts very narrowly triangular. Venezuela.....177. P. tympani
19. Inflorescence lax, few-flowered; floral bracts ovate. Colombia.....178. P. occidentalis
17. Floral bracts at most equaling the 8-9 mm long pedicels.
20. Flowers erect; floral bracts ligulate, shorter than the pedicels, flaccid. Peru, Venezuela. 179. P. brevicalycina
20. Flowers spreading; floral bracts narrowly triangular, about equaling the lower pedicels. Colombia. 180. P. petraea
12. Sepals acute or acuminate.
21. Floral bracts 4-8 cm long, exceeding the lower flowers.
22. Pedicels slender, 10 mm long. Guatemala (?). 191. P. longebracteata
22. Pedicels stout, 3-5 mm long.
23. Sepals ecarinate; leaf-blades unknown but probably not persistent. Guatemala.....216. P. puberula
23. Sepals obtusely carinate. Brazil. 254. P. encholirioides
21. Floral bracts all exceeded by the flowers.
24. Sepals alate-carinate. Brazil.....255. P. carinata
24. Sepals not at all alate.
25. Floral bracts equaling or exceeding the pedicels.
26. Petals sparsely floccose at apex; sepals 30 mm long; inflorescence densely lepidote. Mexico. 209. P. leprosa
26. Petals glabrous; sepals 22-28 mm long.
27. Flowering shoot about equaling to exceeding the leaves. Brazil.....256. P. flammea
27. Flowering shoot little more than half as high as the leaves. Colombia.....181. P. andreana
25. Floral bracts all distinctly shorter than the pedicels.

28. Sepals uncinately recurved; petals yellow or green.
Bolivia.....47. P. platystemon
28. Sepals straight. Brazil.
29. Petals regular, spirally recurving at anthesis.
30. Rhachis of the inflorescence glabrous; sepals 15-18 mm long; petals white to yellow...257. P. albiflos
30. Rhachis of the inflorescence furfuraceous; sepals 19-22 mm long; petals red.....258. P. staminea
29. Petals zygomorphic at least by position, not spirally recurving at anthesis.
31. Base of the rosette not thickened; leaves not over 15 cm long.....259. P. beycalema
31. Base of the rosette bulbous-thickened; leaves usually much more than 15 cm long..256. P. flammea
11. Petals appendaged.
32. Sepals rounded at apex, blunt or apiculate.
33. Scape-bracts equaling or exceeding the internodes.
34. Inflorescence dense, especially toward apex; floral bracts broadly ovate. Lesser Antilles.
241. P. spicata
34. Inflorescence wholly lax; floral bracts linear-lanceolate. Mexico.....231. P. xanthocalyx
33. Scape-bracts distinctly shorter than the upper internodes
35. Petals red.
36. Pedicels 20 mm long, much exceeding all the floral bracts. Colombia.....182. P. grubbiana
36. Pedicels only 5 mm long, exceeding only the upper floral bracts. Dominican Republic..237. P. jimenezii
35. Petals yellow or white.
37. Sepals 9 mm long, elliptic; ovary over 3/4 superior; petal-appendage of 2 vertically attached auricles. Venezuela (?).....183. P. caulescens
37. Sepals 15 mm long, linear; ovary ca. 1/2 superior. Brazil.....33. P. bradei
32. Sepals acute or acuminate.
38. Scape-bracts equaling or exceeding the internodes.
39. Scape very short or none; inflorescence globose. Mexico.....189. P. tabuliformis
39. Scape well developed.
40. Floral bracts 6-8 cm long, from nearly equaling to much exceeding the narrowly triangular sepals.
41. Inflorescence subcorymbose, few-flowered. Guatemala (?).....191. P. longibracteata
41. Inflorescence elongate, many-flowered. Lesser Antilles.....242. P. albucifolia
40. Floral bracts smaller, mostly shorter than the sepals.
42. Petals red. Puerto Rico, Lesser Antilles.
240. P. latifolia
42. Petals yellow or white.
43. Ovary more than 3/4 superior; ovules or seeds caudate. Brazil.....260. P. suaveolens
43. Ovary 1/2 superior. Mexico.

44. Ovules alate; scape-bracts equaling the upper internodes.....43. P. amblyosperma
44. Ovules caudate; scape-bracts exceeding all the internodes.....231. P. xanthocalyx
38. Scape-bracts distinctly shorter than the upper internodes
45. Sepals 16 mm long; inflorescence dense, many-flowered. Venezuela.....184. P. microcalyx
45. Sepals 23-30 mm long.
46. Posterior sepals broadly alate-carinate; floral bracts broadly ovate; flowers sessile. Peru.
91. P. sandemani
46. Posterior (and anterior) sepals not at all alate, at most obtusely carinate.
47. Floral bracts exceeding the pedicels, narrowly triangular or linear-lanceolate, acuminate.
48. Ovules subalate; ovary more than 1/2 superior. Brazil.....32. P. platypetala
48. Ovules long-caudate; ovary more than 4/5 superior; leaves doubtfully persistent. Ecuador.
122. P. pavonii
47. Floral bracts shorter than the pedicels.
49. Petals red; floral bracts ovate, acuminate. Mexico.
228. P. oaxacana
49. Petals white; floral bracts elliptic, acute. Colombia.....185. P. johannis

Subgenus PEPINIA
(including subgenus Schweideleria)

Amazon-Orinoco Basin

1. P. AGAVIFOLIA L. B. Smith, Mem. New York Bot. Gard. 9:287, fig. 18. 1957. Venezuela.
2. P. NUDA Baker, Journ. Bot. 19:269. 1881. British Guiana, Surinam.
3. P. WURDACKII L. B. Smith, Mem. New York Bot. Gard. 10, no. 2:17, fig. 4. 1960. Venezuela.
4. P. MITUENSIS L. B. Smith in R. E. Schultes, Pl. Austro-Am. XI, Rhodora 65:7, fig. 7. 1963. Colombia.
5. P. KUNHARDTIANA L. B. Smith, Mem. New York Bot. Gard. 9: 289, fig. 21. 1957. Venezuela.
6. P. BULBOSA L. B. Smith, Phytologia 5:178, pl. 1, figs. 7-10. 1955. Venezuela, Colombia.
7. P. HELIOPHILA L. B. Smith, Caldasia [1], no. 5:8, fig. 1942. Colombia.
8. P. ARMATA Maury, Journ. de Bot. 3:270, fig. 13. 1889. P. cinerea L. B. Smith, Fieldiana Bot. 28, no. 1:149, fig. 23 d-f. 1951. Venezuela.
9. P. BREWERI L. B. Smith, Phytologia 9:246, pl. 2, figs. 1, 2. 1963. Venezuela.
10. P. GEYSKESII L. B. Smith, Act. Bot. Neerlandica 5:90, fig.

1. 1956. Surinam.
11. P. PRUINOSA H.B.K. Nov. Gen. & Sp. 1:295. 1816. Venezuela.
12. P. PATENTIFLORA L. B. Smith, Contr. Gray Herb. 127:18, pl. 1, fig. 4. 1939.
- Var. a. PATENTIFLORA. Plant 5-10 dm high; leaf-blades scarcely or not at all narrowed toward base, 3-15 mm wide, serrate for most of their length; sepals 15-20 mm long. Venezuela, Brazil.
- Var. b. SUBINTEGRA L. B. Smith, Bot. Mus. Leaflet. Harvard 17: 68. 1955. Leaf-blades distinctly narrowed toward base, to 20 mm wide, serrate only at extreme base; sepals 13-18 mm long. Colombia.
- Var. c. MACRANTHA L. B. Smith, Bot. Mus. Leaflet. Harvard 17:68. 1955. Plant 2 m high; leaf-blades distinctly narrowed toward base, to 25 mm wide, serrate only at extreme base; sepals 25 mm long. Colombia.
- Var. d. ARMATA L. B. Smith, Mem. New York Bot. Gard. 10, no. 5:37. 1964. Flowering 2 m high; leaves 14 dm long; blades 4 cm wide, slightly narrowed toward base, serrulate throughout; sepals to 27 mm long. Venezuela.
13. P. QUESNELIOIDES L. B. Smith, Contr. U. S. Nat. Herb. 29: 313, fig. 33. 1949. Colombia.
14. P. HARLINGII L. B. Smith, Phytologia 8:11, pl. 1, figs. 18-20. 1961. Ecuador.
15. P. RUBIGINOSA (Brongn. ex E. Morr.) Baker, Handb. Bromel. 116. 1889.
- Var. a. RUBIGINOSA. Melinonia rubiginosa Brongn. ex E. Morr. Cat. Bromel. Jard. Liège 11. 1873. Leaves serrulate, at least toward apex; floral bracts exceeding the pedicels. Colombia, French Guiana.
- Var. b. AMAZONICA (Baker) L. B. Smith, Phytologia 7:109. 1960. P. amazonica Baker, Handb. Bromel. 117. 1889. Leaves serrulate, at least toward apex; floral bracts shorter than the pedicels. Brazil.
- Var. c. INTEGRAL L. B. Smith, Phytologia 7:110. 1960. Leaves entire; floral bracts exceeding the lower pedicels, shorter than the upper. Brazil.
16. P. EPIPHYTICA L. B. Smith, Mem. New York Bot. Gard. 9:289, fig. 20. 1957. Venezuela.
17. P. CUATRECASANA L. B. Smith, Caldasia [1], no. 4:16, fig. 1942. Colombia.
18. P. (subgenus ?) LEPRIEURII Baker, Handb. Bromel. 117. 1889. French Guiana.
19. P. CORALLINA Linden & André, Belg. Horticult. 23:112. 1873.
- Var. a. CORALLINA. Leaves to 10 cm wide; inflorescence coral-red. Colombia, Peru.
- Var. b. VIRIDIS L. B. Smith, Bot. Mus. Leaflet. Harvard 17:67. 1955. Leaves only 3 cm wide; inflorescence yellow-green. Colombia.
20. P. SPRUCEI Baker, Journ. Bot. 19:303. 1881. Colombia, Peru, Brazil.
21. P. TURBINELLA L. B. Smith, Caldasia [1], no. 4:17, fig. 5. 1942. Colombia.

22. *P. MAGUIREI* L. B. Smith, Mem. New York Bot. Gard. 10, no. 2:17, fig. 5. 1960. Venezuela.
23. *P. ANOMALA* Hoehne, Comm. Linh. Telegr. Estrat. Matto Grosso Publ. [47], Anexo 5, Bot. pt. 9:9, pl. 161. 1919. Brazil.
24. *P. CARICIFOLIA* Mart. ex Schult. f. in R. & S. Syst. 7, pt. 2:1242. 1830.
- Var. a. *CARICIFOLIA*. *P. kegeliana* Schlecht. Linnaea 24:664. 1851. *P. pauciflora* Baker, Journ. Bot. 19:230. 1881. *P. sub-juncta* Baker, Handb. Bromel. 116. 1889. Floral bracts exceeding the lower pedicels, sometimes equaling the ovaries; sepals 15 mm long, green. Guiana, Venezuela, Colombia, Brazil.
- Var. b. *MACRANTHA* L. B. Smith, Mem. New York Bot. Gard. 10, no. 5:37. 1964. Floral bracts equaling the lowest pedicels, shorter than the remainder; sepals acute, 27 mm long, orange-red. Venezuela.
25. *P. INCARNATA* (Brongn. ex E. Morr.) Baker, Handb. Bromel. 116. 1889. *Melinonia incarnata* Brongn. ex E. Morr. Cat. Bromel. Jard. Liège for 1873:11. 1873. *Pepinia incarnata* E. Morr. ex Baker, Handb. Bromel. 116. 1889, nomen. *Pitcairnia semi-juncta* Baker, Handb. Bromel. 117. 1889. Guiana.
26. *P. UAUPENSIS* Baker, Handb. Bromel. 93. 1889. Colombia, Brazil.
27. *P. CTENOPHYLLA* L. B. Smith in Gleason & Killip, Brittonia 3:161, fig. e-i. 1939. Venezuela.
28. *P. FILISPINA* L. B. Smith, Mem. New York Bot. Gard. 9:289, fig. 19. 1957. Venezuela.
29. *P. JUNCOIDES* L. B. Smith, Contr. Gray Herb. 161:33, pl. 4, figs. 2, 3. 1946. Venezuela.

Planalto of Brazil

30. *P. ENSIFOLIA* Mez in Mart. Fl. Bras. 3, pt. 3:436, pl. 82. 1894.
31. *P. LIMAE* L. B. Smith, Phytologia 7:254, pl. 1, figs. 9, 10. 1960.
32. *P. PLATYPETALA* Mez in Mart. Fl. Bras. 3, pt. 3:438. 1894.
33. *P. BRADEI* Markgraf, Notizblatt 15:215. 1940.

Andean South America

34. *P. FERRUGINEA* R. & P. Fl. Peruv. 3:36. 1802. *Pourretia ferruginea* Spreng. Syst. Veg. 2:23. 1825. *Pitcairnia asterotricha* Poepp. & Endl. Nov. Gen. 2:42, pl. 158. 1838. *Puya grandiflora* Hook. Bot. Mag. 87:pl. 5234. 1861. *Pitcairnia consimilis* Baker, Journ. Bot. 19:226, 266. 1881. *Puya echinotricha* André, Rev. Hortic. 60:565. 1888. *Pitcairnia echinotricha* Baker, Handb. Bromel. 119. 1889. *P. weberbaueri* Mez, Bull. Herb. Boiss. ser. 2, 4:627. 1904. *P. cotahuasiana* Harms, Notizblatt 10:788. 1929. *P. latibracteata* Harms, l. c. *P. herrerae* Harms, op. c. 789. *P. imperialis* Harms, op. c. 790. *P. laresiana* Harms, op. c. 11:58. 1930. Ecuador, Peru, Bolivia.
35. *P. VIRIDIS* Mez, Fedde Rep. Spec. Nov. 16:8. 1919. Peru.

36. *P. KILLIPIANA* L. B. Smith, Contr. U. S. Nat. Herb. 29:308, fig. 29. 1949. Colombia.
37. *P. NANA* (Wittm.) L. B. Smith, Phytologia 7:5. 1959. *Puya nana* Wittm. Mededeel Rijks Herb. 29:85. 1916. Bolivia.
38. *P. ALBORUBRA* Baker, Handb. Bromel. 102. 1889. Colombia.
39. *P. PECTINATA* L. B. Smith, Contr. Gray Herb. 98:9, pl. 3, figs. 6, 7. 1932. Colombia.
40. *P. MIRABILIS* Mez, Fedde Rep. Nov. Spec. 3:6. 1906.
- Var. a. *MIRABILIS*. Leaf-blades 60 cm long, 15 mm wide, subentire to spinose; flowering shoot to 15 dm high; inflorescence 30 cm long. Bolivia, Argentina.
- Var. b. *TUCUMANA* Castellanos, Anal. Mus. Nac. Hist. Nat. Buenos Aires 36:53, pl. 5. 1929. Leaf-blades 22 cm long, 8 mm wide, strongly spinose; flowering shoot 3-4 dm high; inflorescence 8-10 cm long. Argentina.
41. *P. COSTATA* L. B. Smith, Caldasia 5:7, fig. 1948. Colombia.

Mexico, Central America

42. *P. PUNICEA* Scheidw. Bull. Acad. Brux. 9, pt. 1:25. 1842. *P. jacksoni* Hook. Bot. Mag. 76:pl. 4540. 1850. *Pepinia punicea* Brongn. ex André, Ill. Hort. 17:33. 1870. *Lamproconus jacksoni* Lem. ex Hemsl. Biol. Centr. Am. 3:316. 1884. Mexico, Guatemala.
43. *P. AMBLYOSPERMA* L. B. Smith, Contr. Gray Herb. 117:23, pl. 2, figs. 4-7. 1937. Mexico.

Subgenus PITCAIRNIA

Andean South America

44. *P. ECHINATA* Hook. Bot. Mag. 79:pl. 4709. 1853. Colombia.
- Var. a. *ECHINATA*. Sepals and base of ovary densely and coarsely echinate with processes 1-2 mm long; petals white.
- Var. b. *SUBLAEVIS* L. B. Smith, Contr. U. S. Nat. Herb. 29:304. 1949. Sepals and base of ovary minutely and sparsely stellate, nearly even.
- Var. c. *VALLENSIS* L. B. Smith, Phytologia 4:378. 1953. Petals rose-orange; stamens exserted.
45. *P. TUBERCULATA* L. B. Smith, Fieldiana Bot. 28, no. 1:149, fig. 22 c. 1951. Venezuela.
46. *P. PUYOIDES* L. B. Smith, Field Mus. Bot. 11:147. 1936; Contr. Gray Herb. 114:7, pl. 1, figs. 4, 5. 1936. Peru.
47. *P. PLATYSTEMON* Mez in DC. Mon. Phan. 9:421. 1896. Bolivia.
48. *P. PULVERULENTA* R. & P. Fl. Peruv. 3:36, pl. 259. 1802. *Orthopetalum pulverulentum* Beer, Brom. 71. 1857. Peru.
49. *P. PANICULATA* (R. & P.) R. & P. Fl. Peruv. 3:36, pl. 260. 1802. *Pourretia paniculata* R. & P. Syst. Veg. 1:81. 1798. *Pitcairnia longifolia* Hook. Bot. Mag. 80:pl. 4775. 1854. *P. excelsa* E. Morr. Belg. Hort. 25:381. 1875. *P. fruticetorum* Mez, Fedde Rep. Nov. Spec. 3:4. 1906. *P. biattenuata* Rusby, Bull. New York Bot. Gard. 4:457. 1907. Peru, Bolivia.
50. *P.* (subgenus ?) *VERRUCOSA* L. B. Smith, Phytologia 4:380,

- pl. 2, figs. 1-4. 1953. Colombia.
51. *P. RUIZIANA* Mez in DC. Mon. Phan. 9:420. 1896. Peru.
52. *P. DENDROIDEA* André, Enum. Bromel. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Colombia, Ecuador.
53. *P. RIGIDA* Mez, Bull. Herb. Boiss. ser. 2, 4:625. 1904. Peru.
54. *P.* (subgenus ?) *LECHLERI* Baker, Journ. Bot. 19:269. 1881. Peru.
55. *P. INERMIS* (Meyer) Meyer ex Schult. f. in R. & S. Syst. Veg. 7:1238. 1830. Peru.
- Var. a. *INERMIS*. *Pourretia inermis* Meyer in Presl, Rel. Henk. 1:123, pl. 23. 1827. *Orthopetalum inerme* Beer, Bromel. 72. 1857. Flowering to 5 dm high; leaves serrulate above the base; petals scarlet, appendaged.
- Var. b. *FLAVA* L. B. Smith, Phytologia 5:46. 1954. Flowering to 8 dm high; leaves serrulate below the abscission line; petals yellow, naked.
56. *P. ARENICOLA* L. B. Smith, Contr. U. S. Nat. Herb. 29:299, fig. 21. 1949. Colombia.
57. *P. COMMIXTA* L. B. Smith, Contr. U. S. Nat. Herb. 29:303. 1949. *P. orgyalis* sensu André, Énum. Bromél. 4. Dec. 13, 1888, nomen; Rev. Hortic. 60:564. Dec. 16, 1888, nomen; André ex Mez in DC. Mon. Phan. 9:412. 1896, non Baker, 1881. Colombia, Ecuador.
58. *P. LEHMANNII* Baker, Journ. Bot. 19:273. 1881. *P. orgyalis* Baker, l. c. *P. auriculata* Mez, Bull. Herb. Boiss. ser. 2, 3: 134. 1903. Colombia, Ecuador.
59. *P.* (subgenus ?) *ORANENSIS* L. B. Smith, Phytologia 8:228, pl. 2, figs. 15-17. 1962. Argentina.
60. *P. SUBPETIOLATA* Baker, Journ. Bot. 19:267. 1881. *P. latifolia* sensu Baker, Handb. Bromel. 92. 1889, in part, as to *Burchell* 8116. *P. caldasiana* Baker, op. c. 100. *P. burchellii* Mez Mart. Fl. Bras. 3, pt. 3:436. 1894. *P. sessiliflora* Rusby, Bull. New York Bot. Gard. 4:457. 1907. Peru, Bolivia, Brazil.
61. *P. TRUNCATA* L. B. Smith, Contr. Gray Herb. 98:10, pl. 3, figs. 8, 9. 1932. Peru.
62. *P. CHIRIGUANA* Castellanos, An. Mus. Nac. Hist. Nat. Buenos Aires 36:52, pl. 4. 1929. Argentina.
63. *P. TARAPOTENSIS* Baker, Handb. Bromel. 102. 1889. Peru.
64. *P.* (subgenus ?) *CHOCOENSIS* L. B. Smith, Contr. U. S. Nat. Herb. 29:302, fig. 24. 1949. Colombia.
65. *P.* (subgenus ?) *HAUGHTII* L. B. Smith, Contr. U. S. Nat. Herb. 29:307, fig. 28. 1949. Colombia.
66. *P. MEGASEPALA* Baker, Journ. Bot. 19:229. 1881. *P. araneoosa* Baker, op. c. 231. *P. goudotiana* André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. *P. camptocalyx* André, l. c. *P. camptocalyx* var. *lutea*, var. *robusta*, l. c. Colombia.
67. *P. TRIMORPHA* L. B. Smith, Phytologia 5:179, pl. 2, figs. 1-3. 1955. Colombia.
68. *P. POORTMANII* André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Colombia, Ecuador.
69. *P. KNIPHOFIOIDES* L. B. Smith, Proc. Am. Acad. Sci. 70:153,

pl. 1, fig. 18, 1935. Colombia.

70. *P. TOLIMENSIS* L. B. Smith, *Caldasia* [1], no. 4:17, fig. 4 1942. Colombia.

71. *P. INTEGRIFOLIA* Ker-Gawl. Bot. Mag. 36:pl. 1462. 1812. *P. graminifolia* hort. ex Schrad. Comm. Blumenb. 46. 1827. *P. decora* A. Dietr. Allg. Gartenzeit. 15:353. 1847. *P. alta* Hassk. Verh. Naturk. Ver. Ned. Ind. 1, pt. 7:5. 1856. *P. graminea* Beer, Bromel. 198. 1857, nomen. ? *P. integrifolia* var. *major* Regel, Ind. Sem. Hort. Petrop. for 1869:24. 1869. *P. tenuis* Mez in DC. Mon. Phan. 9:421. 1896. *P. hartmannii* Mez, Fedde Rep. Spec. Nov. 16: 8. 1919. Venezuela, Trinidad.

72. *P.* (subgenus ?) *CASSAPENSIS* Mez, Fedde Rep. Spec. Nov. 16: 8. 1919. Peru.

73. *P. MORITZIANA* K. Koch & Bouché, Ind. Sem. Hort. Berol. for 1856, App.:4. 1857. *P. klotzschiana* Baker, Handb. Bromel. 106. 1889. *P. moritziana* Kl. ex Baker, l. c., nomen. Venezuela.

74. *P.* (subgenus ?) *CUZCOENSIS* L. B. Smith, Contr. Gray Herb. 98:9, pl. 3, figs. 3-5. 1932. Peru.

75. *P. SCHULTZEI* Harms, Notizblatt 10:212. 1928. Colombia.

76. *P. VARGASIANA* L. B. Smith, sp. nov. *P. cuzcoensis* L. B. Smith in *systema mea proxima sed foliorum laminis majoribus deciduis, bracteis primariis quam ramis multo brevioribus differt.*

Caulесcent, incomplete and immature but undoubtedly flowering 1 m or higher; stem erect, 15 cm high; leaf-sheaths densely imbricate, broadly ovate, ca. 3 cm long, entire or pectinate-serrate only near apex, dark castaneous, lustrous, covered with appressed whitish scales toward base; blades polymorphic, some greatly reduced and spiniform, castaneous, either entire or pectinate-serrate, others foliaceous and deciduous, either wholly entire or serrate below the line of abscission, linear-lanceolate, acuminate, slightly narrowed toward base, 25 cm long, 15 mm wide, glabrous except for marginal scales near base; scape erect, ca. 8 mm in diameter; lower scape-bracts densely imbricate, subfoliaceous with deciduous blades; inflorescence laxly compound, sparsely white-flocculose; primary bracts narrowly triangular, 3 cm long; lateral branches to 18 cm long including the naked 7 cm sterile base, laxly flowered, terminal branch 27 cm long; floral bracts to 25 mm long, much exceeding the pedicels; flowers secund, spreading to recurved at anthesis, red; pedicels 8 mm long; sepals lance-oblong, subacute, 20 mm long, ecarinate or nearly so, soon glabrous; petals naked; ovary over 1/2 superior; ovules caudate. Pl. I, fig. 4: Flower x 1/2; fig. 5: Sepal. x 1.

PERU: Cuzco: Prov. Paucartambo: Rocky open places, K. 134, alt. 2000 m, July 20, 1963, C. Vargas C. no. 14716 (US, type).

77. *P. HALOPHILA* L. B. Smith, sp. nov. *P. platystemon* Mez in *systema mea proxima sed bracteis florigeris anguste triangularibus, petalis lacteis differt.*

Stemless (?), flowering 75 cm high; leaves apparently all persistent; sheaths broadly ovate, the outer 2 cm long, entire except near apex, dark castaneous, at first covered toward apex with appressed cinereous scales; blades polymorphic, some reduced to spinose-serrate spines, some much reduced but foliaceous and

entire, the central ones foliaceous, linear, acuminate, scarcely narrowed at base, about equaling the inflorescence, 12 mm wide, entire, covered beneath with pale subappressed scales, glabrous above; scape slender, erect, pale-lepidote; scape-bracts apparently exceeding the internodes (the highest damaged and uncertain), linear-triangular; inflorescence 34 cm long with a single short lateral branch, lax, pale-flocculose; primary bract linear, attenuate, about equaling the naked sterile base of the branch; floral bracts linear-triangular, to 15 mm long; flowers divergent not secund; pedicels straight, slender, to 25 mm long; sepals linear, acute, 23 mm long, scarcely carinate, soon glabrous; petals naked, over 5 cm long, cream (! Foster); ovary over 2/3 superior; ovules short-caudate. Pl. I, fig. 6: Flower x 1/2; fig. 7: Sepal x 1.

COSTA RICA: Puntarenas; Base of cliffs at high-tide level, Quepos, December 12, 1948, M. B. Foster no. 2669 (US, type).

78. P. EXSERTA L. B. Smith, Caldasia 5:10, fig. 1948. Colombia.

79. P. DEVANSAYANA André ex Baker, Handb. Bromel. 93. 1889. P. roezlii André, Enum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888, non E. Morr. 1885. Ecuador.

80. P. DIFFUSA L. B. Smith, Caldasia 5:8, fig. 1948. Colombia.

81. P. (subgenus ?) MULTIRAMOSA Mez in DC. Mon. Phan. 9:419. 1896. Bolivia.

82. P. ODONTOPODA Baker, Handb. Bromel. 93. 1889. Bolivia.

83. P. DIVARICATA Wittm. Mededeel. Rijks Herb. 29:81. 1916. Bolivia.

84. P. (subgenus ?) APHELANDRIFLORA Lem. Ill. Hortic. 16: Misc. 90. 1869. Pepinia aphelandriflora André, Ill. Hortic. 17: 32, pl. 5. 1870. Peru, Panama.

85. P. CAPITATA L. B. Smith, Contr. U. S. Nat. Herb. 29:301, fig. 23. 1949. Colombia.

86. P. (subgenus ?) GUZMANIOIDES L. B. Smith, Contr. U. S. Nat. Herb. 29:306, fig. 27. 1949. Colombia.

87. P. ARCHERI L. B. Smith, Contr. Gray Herb. 104:79, pl. 3, figs. 20, 21. 1934. Colombia.

88. P. (subgenus ?) POEPPIGIANA Mez in Mart. Fl. Bras. 3, pt. 3:461. 1894. Peru.

89. P. MACRANTHERA André, Enum. Bromél. 5. Dec. 13, 1888; Rev. Hortic. 60:565. Dec. 16, 1888; emend. L. B. Smith, Contr. U. S. Nat. Herb. 29:310. 1949. Colombia.

90. P. MAIDIFOLIA (C. Morr.) Dcne. ex Planch. Fl. Serres 9: 151, pl. 915. 1854. Puya maidifolia C. Morr. Ann. Soc. Agr. Bot. Gand 5:453, pl. 1849. P. funkiana Linden, Cat. 5:2. 1850. Pitcairnia funkiana A. Dietr. Allgem. Gartenzeit. 19:337. 1851. P. maydifolia Dcne. ex Naudin, Rev. Hortic. ser. 3, 5:347. 1851. P. macrocalyx Hook. Bot. Mag. 79:pl. 4705. 1853. ? P. polyanthoides Brongn. ex Dcne. Rev. Hortic. 27:244. 1855 (! Mez). P. zeifolia Koch & Sello ex K. Koch, Ind. Sem. Hort. Berol. for 1854: App. 11. 1855. P. maizaifolia hort. ex Beer, Bromel. 46. 1857, nomen. Phlomostachys funkiana Beer, Bromel. 47. 1857. Neumannia maidifolia K. Koch, Ind. Sem. Hort. Berol. for 1856: App. 2. 1857.

Pitcairnia funkii Wawra, It. Princ. S. Coburgi 1:174. 1883. Lamproconus maidifolius Lem. ex Baker, Handb. Bromel. 109. 1889, nomen. Vriesia tricolor hort. ex Baker, l. c., nomen. Pitcairnia oerstediana Mez in DC. Mon. Phan. 9:448. 1896. Guiana, Venezuela, Colombia, Central America.

91. P. SANDEMANII L. B. Smith, Contr. U. S. Nat. Herb. 29:531, fig. 87. 1954. Peru.

92. P. (subgenus ?) MARITIMA L. B. Smith, Contr. U. S. Nat. Herb. 29:311, fig. 31. 1949. Colombia.

93. P. (subgenus ?) FERREYRAE L. B. Smith, Phytologia 4:215, pl. 1, figs. 10-12. 1953. Peru.

94. P. SCEPTRIFORMIS Mez, Bull. Herb. Boiss. ser. 2, 4:628. 1904; Ule, Verhandl. Bot. Ver. Brandenb. 48:139. 1907. Peru.

95. P. BRITTONIANA Mez in DC. Mon. Phan. 9:451. 1896. P. werckleana Mez, Bull. Herb. Boiss. ser. 2, 4:622. 1904. P. flaviflora Standley, Journ. Wash. Acad. Sci. 17:247. 1927. Costa Rica to British Guiana and Bolivia.

96. P. NIGRA (Carr.) André, Énum. Bromél. 5. Dec. 13, 1888, incorrectly attributed to Carr.; Rev. Hort. 60:565. Dec. 16, 1888. Neumannia nigra Carr. Rev. Hort. 53:390, pl. 1881. Pitcairnia gravisiana Wittm. Bot. Jahrb. 11:56. 1889. Colombia, Ecuador.

97. P. PULCHELLA Mez in DC. Mon. Phan. 9:459. 1896. Ecuador.

98. P. BRONGNIARTIANA André, Énum. Bromél. 5. Dec. 13, 1888; Rev. Hort. 60:565. Dec. 16, 1888.

Var. a. BRONGNIARTIANA. P. klabochorum hort. ex Baker, Handb. Bromel. 107. 1889, nomen. P. klabochiana C. Morr. ex Mez in DC. Mon. Phan. 9:414. 1896. Leaf-blades narrowly lanceolate, acuminate, 80 mm wide. Colombia.

Var. b. LATIFOLIA L. B. Smith, Phytologia 6:438. 1959. Leaf-blades oblanceolate, broadly acute and apiculate, 135-145 mm wide. Ecuador.

99. P. BRUNNESCENS L. B. Smith, Contr. U. S. Nat. Herb. 29:300, fig. 22. 1949. Colombia, Ecuador.

100. P. BARRIGAE L. B. Smith, Caldasia 5:5, fig. 1948. Colombia.

101. P. (subgenus ?) CLAVATA L. B. Smith, Phytologia 9:248, pl. 2, figs. 9, 10. 1963. Peru.

102. P. SQUARROSA L. B. Smith, Caldasia 5:11, fig. 1948. Colombia.

Var. a. SQUARROSA. Floral bracts castaneous with acuminate green apices; petals white.

Var. b. COLORATA L. B. Smith, Caldasia 5:12. 1948. Floral bracts bright red; petals dark purple.

Var. c. AURANTIACA L. B. Smith, Phytologia 5:396. 1956. Inflorescence 10 cm long; floral bracts with short broadly acute apices; sepals 25 mm long; petals orange.

103. P. ATRORUBENS (Beer) Baker, Journ. Bot. 19:307. 1881. Phlomostachys atrorubens Beer, Bromel. 48. 1857. Puya warszewiczii H. Wendl. ex Hook. Bot. Mag. 87:pl. 5225. 1861. Pitcairnia lamarcheana E. Morr. ex Baker, Handb. Bromel. 111. 1889. P. lindeni Baker, op. c. 112. Neumannia lindeni E. Morr. ex Baker,

- l. c., nomen. N. atrorubens K. Koch ex Baker, l. c., nomen.
Lamproconus warszewiczii Lem. ex Baker, l. c., nomen. P. atro-
rubens β . lamarcheana Mez in DC. Mon. Phan. 9:457. 1896.
 Colombia, Panama, Costa Rica, Mexico (?).
 104. P. CAMPIL L. B. Smith, Mem. New York Bot. Gard. 8:28,
 fig. 1, j-k. 1952. Ecuador.
 105. P. ELONGATA L. B. Smith, Contr. U. S. Nat. Herb. 29:304,
 fig. 25. 1949. Colombia, Ecuador.
 106. P. (subgenus ?) BAKERI (André) André ex Mez in DC. Mon.
 Phan. 9:460. 1896; emend. L. B. Smith, Caldasia 5:4, fig. 1948.
Quesnelia bakeri André, Enum. Bromél. 4. Dec. 13, 1888; Rev.
 Hortic. 60:564. Dec. 16, 1888. Colombia, Ecuador.
 107. P. (subgenus ?) OBLANCEOLATA L. B. Smith, Contr. Gray
 Herb. 117:26, pl. 2, fig. 18. 1937. Colombia, Panama, Costa Rica
 108. P. ARCUATA (André) André, Enum. Bromél. 5. Dec. 13, 1888;
 Rev. Hortic. 60:565. Dec. 16, 1888. Neumannia arcuata André,
 Rev. Hortic. 58:108, pl. 1886. Colombia.
 109. P. FOSTERIANA L. B. Smith, Contr. U. S. Nat. Herb. 29:
 305, fig. 26. 1949. Colombia.
 110. P. UMBRATILIS L. B. Smith, Phytologia 4:216, pl. 1, figs.
 15-17. 1953. Peru.
 111. P. HITCHCOCKIANA L. B. Smith, Phytologia 5:44, pl. 6,
 figs. 1-3. 1954. Ecuador.
 112. P. (subgenus ?) SCEPTRIGERA Mez, Fedde Rep. Nov. Spec. 3:
 7. 1906. Ecuador.
 113. P. ASPLUNDII L. B. Smith, Phytologia 4:214, pl. 1, figs.
 6-9. 1953. Peru.
 114. P. SUBULIFERA L. B. Smith, Phytologia 4:215, pl. 1, figs.
 13, 14. 1953. Peru.
 115. P. ALTENSTEINII (Lk., Kl. & Otto) Lem. Fl. des Serres ser
 1, 2:pl. 162. 1846. Venezuela.
 Var. a. ALTENSTEINII. Puya altensteinii Lk., Kl. & Otto, Pl.
 rar. Hort. Berol. 1:1, pl. 1. 1840. Pitcairnia undulatifolia
 Hook. Bot. Mag. 72:pl. 424l. 1846, non hort. 1846. Lamproconus
altensteinii Lem. Jard. Fleur. 2:sub pl. 127. 1852. ? Pitcairnia
rhodostachys Hassk. Verh. Nat. Ver. Ned. Ind. 1, pt. 7:8. 1856;
 cf. Mez in Pflanzenreich 4, Fam. 32:275. 1935. Phlomostachys al-
tensteinii Beer, Bromel. 45. 1857. Neumannia altensteinii Griseb
 Goett. Nachr. for 1864:14. 1865. Flowering about 1 m high or
 less; leaves less than 12; inflorescence ca. 12 cm long.
 Var. b. GIGANTEA (Hook.) Baker, Handb. Bromel. 111. 1889.
Puya altensteinii var. gigantea Hook. Bot. Mag. 73:pl. 4309.
 1847. P. macrostachys A. Dietr. Allg. Gartenzeit. 16:145. 1848.
P. macrostachya Schomb. Fl. & Fauna Guyana 1068. 1848, nomen.
Lamproconus giganteus Lem. Jard. Fleur. 2:sub pl. 127. 1852.
Phlomostachys gigantea Beer, Bromel. 47. 1857. Neumannia gigan-
tea Brongn. ex Beer, Bromel. 47. 1857, nomen. Flowering over 2 m
 high; leaves many; inflorescence ca. 30 cm long.
 116. P. HETEROPHYLLA (Lindl.) Beer, Bromel. 68. 1857.
 Var. a. HETEROPHYLLA. Leaves dimorphic. Peru and Venezuela
 to Panama and Mexico.
 Forma a. HETEROPHYLLA. Puya heterophylla Lindl. Bot. Reg. 26:

pl. 71. 1840. *P. longifolia* C. Morr. Ann. Soc. Agr. Bot. Gand 2: 483, pl. 101. 1846. *Pitcairnia exscapa* Liebm. Ind. Sem. Hort. Haun. for 1848:12. 1848. *P. lindleyana* Lem. Jard. Fleur. 2: sub pl. 151. 1852. *P. morrenii* Lem. op. c. 3:pl. 291. 1852. *P. longifolia* Beer, Brömel. 67. 1857. *P. liebmannii* K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 7. 1858. Petals some shade of red.

Forma b. ALBIFLORA Standley & L. B. Smith, Lilloa 6:383. 1941. Petals white.

Var. b. EXSCAPA Mez in DC. Mon. Phan. 9:375. 1896. *Pitcairnia cernua* Kunth & Bouché, Ind. Sem. Hort. Berol. for 1848:12. 1848. *P. exscapa* Hook. Bot. Mag. 77:pl. 4591. 1851, non Liebm. 1848. Colombia, Ecuador.

117. *P.* (subgenus ?) AUGUSTII Harms, Notizblatt 10:211. 1928. Peru.

118. *P. AEQUATORIALIS* L. B. Smith, Contr. Gray Herb. 114:6. pl. 1, fig. 3. 1936. Ecuador.

119. *P. CRASSA* L. B. Smith, Lilloa 14:94, fig. 5. 1948. Bolivia.

120. *P. LIGNOSA* L. B. Smith, Contr. U. S. Nat. Herb. 29:309, fig. 30. 1949. Colombia.

121. *P. STENOPHYLLA* André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Colombia.

122. *P. PAVONII* Mez in DC. Mon. Phan. 9:386. 1896. Ecuador.

123. *P. PUNGENS* H.B.K. Nov. Gen. & Sp. 1:294. 1816. *P. laevis* Willd. ex Schult. in R. & S. Syst. 7, pt. 2:1249. 1830, nomen. *P. concolor* Baker, Journ. Bot. 19:269. 1881. Colombia to Peru.

124. *P. BILLBERGII* L. B. Smith, Publ. Mus. Hist. Nat. "Javier Prado" Univ. Nac. Mayor San Marcos ser. B, no. 13:4, fig. 6-8. 1963. Peru.

125. *P.* (subgenus ?) MELANOPODA L. B. Smith, Phytologia 9:249, pl. 2, figs. 11-13. 1963. Peru.

126. *P. LOPEZII* L. B. Smith, Phytologia 5:46, pl. 6, figs. 4-6. 1954. Peru.

127. *P. DECURVATA* L. B. Smith, sp. nov. *P. lopezii* L. B. Smith in systema mea proxima sed scapo gracili, scapi bracteis quam internodiis brevioribus, floribus patentibus vel decurvatis secundis differt.

Stemless, flowering over 6 dm high; leaves subbulbous-rosulate; blades dimorphic, some reduced to slender pectinate-serrate dark spines, others foliaceous, deciduous, linear, acuminate, 32 cm long, 18 mm wide, entire above the line of abscission, pale-lepidote beneath, soon glabrous; scape erect, 5 mm in diameter, soon glabrous; scape-bracts linear-lanceolate, acuminate, much shorter than the upper internodes; inflorescence simple, lax, white-flocculose, becoming glabrous; floral bracts ovate, acuminate, to 23 mm long, exceeding all the pedicels; flowers secund, spreading to decurved at anthesis; pedicels slender, to 14 mm long, somewhat biangulate; sepals narrowly triangular, acuminate, 30 mm long, glabrous at anthesis, the posterior ones sublate-carinate toward base; petals over 8 cm long, naked, yellow; ovary 7/8 superior; ovules caudate. Pl. I, fig. 8: Flower x 1/2; fig. 9: Sepal x 1.

PERU: Lambeyeque: Prov. Lambeyeque: Rocky slope, between Beata de Humay and Km. 38 on the Olmos-Marañon Highway, alt. 150 m, May 21, 1963, A. López, A. Sagástegui & V. Collantes, no. 4047 (TRP, type).

128. *P. VIOLASCENS* L. B. Smith, *Phytologia* 6:439, pl. 2, figs. 12, 13. 1959. Ecuador.

129. *P. FRACTIFOLIA* L. B. Smith, sp. nov. *P. palmeri* S. Watson in *systema mea proxima sed pedicellis brevioribus, floribus haud secundis differt.*

Stemless (?), flowering 75 cm high; leaves bulbous-rosulate, entire; sheaths very broadly ovate, centrally castaneous, densely pale-lepidote, becoming glabrous; blades dimorphic, some much reduced, subulate, persistent, green, others foliaceous, linear, acuminate, over 55 cm long (incomplete), 12 mm wide, covered with appressed cinereous scales beneath, glabrous above, channeled; scape erect, slender, sparsely pale-lepidote; scape-bracts narrowly triangular, acuminate, much shorter than the upper internodes; inflorescence simple, lax, 19 cm long, subglabrous; floral bracts narrowly triangular, acuminate, to 10 mm long; flowers polystichous, not secund; pedicels spreading, slender, to 20 mm long, much exceeding all the floral bracts; sepals oblong, acute, 16 mm long, short-carinate above the tumid base; petals (immature) barely exceeding the sepals, red, naked; ovary 4/5 superior; ovules caudate. Pl. I, fig. 10: Flower x 1/2; fig. 11: Sepal x 1.

PERU: Amazonas: Prov. Chachapoyas: On rocks, Tialango, between Bagua and Ingenio, alt. 800 m, May 27, 1963, A. López, A. Sagástegui & V. Collantes, no. 4242 (TRP, type).

130. *P. CARDENASII* L. B. Smith, *Phytologia* 8:505, pl. 3, figs. 5-7. 1963. Bolivia.

131. *P. STRAMINEA* Poeppig ex Mez in DC. *Mon. Phan.* 9:427. 1896. Peru.

132. *P. ALATA* L. B. Smith, *Lloydia* 11:304, fig. 2. 1948. Ecuador.

133. *P.* (subgenus ?) *SCANDENS* Ule, *Verhandl. Bot. Ver. Brandenb.* 48:140. 1907. Peru.

134. *P. LUTESCENS* Mez & Sodiro, *Bull. Herb. Boiss. ser. 2*, 4: 626. 1904. Ecuador.

135. *P. ERRATICA* L. B. Smith, *Lloydia* 11:305, fig. 3. 1948. Ecuador.

136. *P. ACICULARIS* L. B. Smith, *Publ. Mus. Hist. Nat. "Javier Prado" Univ. Mayor San Marcos ser. B*, no. 13:3, figs. 4, 5. 1963. Peru.

137. *P. RIPARIA* Mez, *Fedde Rep. Spec. Nov.* 12:416. 1913. Peru.

138. *P. SPECTABILIS* Mez in DC. *Mon. Phan.* 9:421. 1896. Colombia.

139. *P. LAXISSIMA* Baker, *Handb. Bromel.* 101. 1889. Colombia.

140. *P. LONGIPES* Mez, *Fedde Rep. Spec. Nov.* 12:416. 1913. Colombia.

141. *P. ELLIPTICA* Mez & Sodiro, *Bull. Herb. Boiss. ser. 2*, 4: 624. 1904. Ecuador.

142. *P. TUMULICOLA* L. B. Smith, *Contr. U. S. Nat. Herb.* 29:

314, fig. 34. 1949. Colombia.

143. *P. BIFLORA* L. B. Smith, Contr. Gray Herb. 127:17, pl. 1, figs. 1-3. 1939. Peru.

144. *P. MULTIFLORA* L. B. Smith, Contr. U. S. Nat. Herb. 29:312, fig. 32. 1949. Colombia.

145. *P. KALBREYERI* Baker, Journ. Bot. 19:273. 1881. Colombia, Panama.

146. *P. VOLUBILIS* L. B. Smith, Phytologia 5:33, pl. 1, figs. 1-4. 1954. Colombia.

147. *P. NUBIGENA* Planch. Fl. des Serres ser. 1, 8:265, pl. 847. 1852-53. Venezuela.

148. *P. MERIDENSIS* Kl. ex Mez in DC. Mon. Phan. 9:385. 1896.

P. integrifolia var. "P." meridensis Kl. ex Baker, Handb. Bromel. 97. 1889. Venezuela.

149. *P. BELLA* L. B. Smith, Caldasia 3:240, fig. 1945. Colombia
Var. a. *BELLA*. Upper scape-bracts shorter than the internodes; sepals 24 mm long.

Var. b. *DENSIOR* L. B. Smith, Contr. U. S. Nat. Herb. 29:300. 1949. Scape-bracts exceeding the internodes; sepals not over 17 mm long.

150. *P.* (subgenus ?) *CALOPHYLLA* L. B. Smith, Contr. U. S. Nat. Herb. 29:432, fig. 38. 1951. Colombia.

151. *P. SYLVESTRIS* L. B. Smith, Contr. Gray Herb. 117:29, pl. 2, fig. 27. 1937. Colombia.

152. *P. DOLICHOPETALA* Harms, Notizblatt 12:530. 1935. Colombia.

153. *P. REFLEXIFLORA* André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Ecuador.

154. *P. SEMAPHORA* L. B. Smith, Caldasia 3:242. 1945. Colombia

155. *P. MACARENENSIS* L. B. Smith, Bot. Mus. Leaflet. Harvard 16:192, pl. 25, figs. 1-4. 1954. Colombia.

156. *P. GUARITERMAE* André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Colombia.

157. *P.* (subgenus ?) *CALATHEOIDES* L. B. Smith, Contr. Gray Herb. 117:24, pl. 2, figs. 8-11. 1937. Peru.

158. *P. SODIROI* Mez, Bull. Herb. Boiss. ser. 2, 4:622. 1904. Ecuador.

159. *P. NOBILIS* Mez & Sodiro, Bull. Herb. Boiss. ser. 2, 4:623. 1904. Ecuador.

160. *P.* (subgenus ?) *ADSCENDENS* L. B. Smith, Contr. U. S. Nat. Herb. 29:298, fig. 20. 1949. Colombia.

161. *P. SNEIDERNII* L. B. Smith, Phytologia 6:434, pl. 1, figs. 5-7. 1959. Colombia.

162. *P.* (subgenus ?) *CYANOPETALA* Ule, Verhandl. Bot. Ver. Brandenburg. 48:139. 1907. Peru.

163. *P. BRACHYSPERMA* André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Colombia.

164. *P. SIMILIS* L. B. Smith, Contr. U. S. Nat. Herb. 29:434, fig. 40. 1951. Colombia.

165. *P. PALMOIDES* Mez & Sodiro, Bull. Herb. Boiss. ser. 2, 4:626. 1904. Ecuador.

166. *P.* (subgenus ?) *EXIMIA* Mez, Fedde Rep. Nov. Spec. 3:5.

1906. Peru.

167. *P. TRIANAE* André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888.

Var. a. *TRIANAE*. Sepals obtuse; petals 35-45 mm long. Colombia, Bolivia.

Var. b. *RETUSA* L. B. Smith, Lloydia 11:305. 1948. Sepals re-tuse; petals not over 25 mm long. Ecuador.

168. *P. OBLONGIFOLIA* L. B. Smith, Phytologia 6:438, pl. 2, figs. 9-11. 1959. Ecuador.

169. *P. LANUGINOSA* R. & P. Fl. Peruv. 3:35, pl. 258. 1802. *Puya ruiziana* Mez in DC. Mon. Phan. 9:491. 1896, as to synonymy, not as to specimen. Peru.

170. *P. PARAGUAYENSIS* L. B. Smith, Rev. Argentina Agron. 7: 163, figs. 4-6. 1940. Paraguay.

171. *P. MACROBOTRYS* André, Énum. Bromél. 4. Dec. 13, 1888; Rev. Hortic. 60:564. Dec. 16, 1888. Colombia.

172. *P. ORCHIDIFOLIA* Mez, Fedde Rep. Spec. Nov. 17:114. 1921. Venezuela.

173. *P. FENDLERI* Mez in DC. Mon. Phan. 9:387. 1896. Venezuela

174. *P. UNILATERALIS* L. B. Smith, Phytologia 8:11, pl. 1, figs. 21-23. 1961. Ecuador.

175. *P. LEPIDOPETALON* L. B. Smith, Caldasia 5, no. 21:10, fig. 1948. Colombia.

176. *P. PUSILLA* Mez in DC. Mon. Phan. 9:429. 1896. French Guiana.

177. *P. TYMPANI* L. B. Smith, Phytologia 5:177, pl. 1, figs. 4-6. 1955. Venezuela.

178. *P.* (subgenus ?) *OCCIDENTALIS* L. B. Smith, Phytologia 4: 380, pl. 1, figs. 4-6. 1953. Colombia.

179. *P.* (subgenus ?) *BREVICALYCINA* Mez, Fedde Rep. Spec. Nov. 16:9. 1919. Peru, Venezuela.

180. *P. PETRAEA* L. B. Smith, Contr. U. S. Nat. Herb. 29:433, fig. 39. 1951. Colombia.

181. *P.* (subgenus ?) *ANDREANA* Linden Cat. 1873; Ill. Hortic. 20:146, pl. 139. 1873. *P. lepidota* Regel, Act. Hort. Petrop. 2: 435. 1873; Gartenfl. 22:389, pl. 772. 1873. Colombia.

182. *P. GRUBBIANA* L. B. Smith, sp. nov. *P. jimenezii* in sistema mea proxima sed pedicellis majoribus bracteas florigeras omnia superantibus differt.

Stemless (?), flowering 45 cm high; leaves fasciculate, persistent, nearly equaling the inflorescence, entire; sheaths ovate, ca. 2 cm long, dark castaneous, at first covered with a membrane of pale coalesced scales; blades dimorphic, some much reduced, subulate, green, others foliaceous, linear, caudate-acuminate, slightly narrowed toward base but not petiolate, 14 mm wide, glabrous; scape erect, slender, sparsely pale-lepidote; lower scape-bracts foliaceous, large, the highest ovate, caudate, shorter than the internode; inflorescence simple, lax, the axis 9 cm long, sparsely pale-lepidote; floral bracts ovate, acuminate, to 19 mm long, thin; flowers suberect, not secund; pedicels slender, to 22 mm long, all exceeding the floral bracts; sepals oblong, obtuse, 16 mm long, obscurely carinate; petals 4 cm long,

bearing a crenate scale at base, red; stamens included; ovary 3/4 superior; ovules caudate. Pl. I, fig. 12: Flower x 1/2; fig. 13: Sepal x 1.

COLOMBIA: Boyacá: Hill sabana on path from Báchira to Bócota soon after it climbs up out of valley bottom, Sierra Nevada de Cocuy, alt. ca. 2150 m, August 21, 1957, P. J. Grubb, B. A. B. Curry & A. Fernández-Pérez, no. 649 (US, type).

183. *P.* (subgenus ?) *CAULESCENS* K. Koch ex Mez in DC. Mon. Phan. 9:425. 1896. Venezuela (?).

184. *P. MICROCALYX* Baker, Journ. Bot. 19:228. 1881. Venezuela
Var. a. *MICROCALYX*. *P. lutea* hort. Linden ex Baker, Handb. Bromel. 104. 1889. Floral bracts lanceolate, acuminate; sepals triangular, acuminate; petals yellow.

Var. b. *SCHLIMII* (Baker) L. B. Smith, Phytologia 7:106. 1960.
P. schlimii Baker, Handb. Bromel. 100. 1889. *P. caracasana* Baker, op. c. 103. Floral bracts lanceolate, acuminate; sepals triangular, acuminate; petals red.

Var. c. *ELLIPTICA* L. B. Smith, Phytologia 7:107. 1960. Floral bracts elliptic, apiculate; sepals oblong, subacute; petals red.

185. *P. JOHANNIS* L. B. Smith, Phytologia 5:179, pl. 1, figs. 11-13. 1955. Colombia.

Mexico, Central America

(cf. nos. 77 (out of order), 84, 90, 95, 103, 107, 116)

186. *P. CHIRIQUENSIS* L. B. Smith, Contr. U. S. Nat. Herb. 29: 281, fig. 6, 1949. Panama.

187. *P. FLAGELLARIS* L. B. Smith, Contr. U. S. Nat. Herb. 29: 280, fig. 5. 1949. Guatemala.

188. *P. VALERII* Standley, Journ. Wash. Acad. Sci. 17:246. 1927. Costa Rica.

189. *P. TABULIFORMIS* Linden Cat. 17:5. 1862. Mexico.

190. *P. RECURVATA* (Scheidw.) K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 4. 1858. *Puya recurvata* Scheidw. Allgem. Gartenzeit. 10:275. 1842. *Pepinia recurvata* E. Morr. ex Baker, Handb. Bromel. 110. 1889, nomen. *Pitcairnia taenipetala* Mez in DC. Mon. Phan. 9:382. 1896. Guatemala, British Honduras, Mexico.

191. *P.* (subgenus ?) *LONGEBRACTEATA* Bouché ex Mez in DC. Mon. Phan. 9:428. 1896. Guatemala (?).

192. *P. MATUDAE* L. B. Smith, Phytologia 8:220, pl. 1, figs. 5, 6, 1962. Mexico.

193. *P. WENDLANDII* Baker, Journ. Bot. 19:306. 1881. *Puya sulphurea* Hook. Bot. Mag. 79:pl. 4696. 1853. *Neumannia sulphurea* K. Koch, Ind. Sem. Hort. Berol. for 1856:App. 2. 1857. *Phlomostachys sulphurea* Beer, Bromel. 46. 1857. *Pitcairnia altensteinii* sensu J. Donnell Smith, Enum. Pl. Guatemal. 3:79. 1889-1907. *P. sulfurea* Mez in DC. Mon. Phan. 9:456. 1896, non Andr. 1802. Costa Rica, Guatemala, Mexico.

194. *P. MACROCHLAMYS* Mez, Fedde Rep. Nov. Spec. 3:6. 1906. Guatemala.

195. *P. HEMSLEYANA* Mez in DC. Mon. Phan. 9:455. 1896, as to type only. *P. ochroleuca* Baker, Journ. Bot. 19:306. 1881; Baker

- in Hemsli. Biol. Centr.-Am. Bot. 3:317, pl. 85. 1884, as to material cited, not as to basionym. P. petiolata Baker, Handb. Bromel. 112. 1889, in part, as to Salvin & Godman. Guatemala.
196. P. IMBRICATA (Brongn.) Regel, Gartenfl. 17:135. 1868. Neumannia imbricata Brongn. Ann. Sci. Nat. ser. 2, 15:369. 1841. Phlomostachys imbricata Beer, Bromel. 47. 1857. Pitcairnia imbricata Brongn. ex K. Koch, Ind. Sem. Hort. Berol. for 1856: App. 2. 1857, nomen. Mexico.
197. P. PETIOLATA (Koch & Bouché) Baker, Journ. Bot. 19:307. 1881. Neumannia petiolata Koch & Bouché ex K. Koch, Ind. Sem. Hort. Berol. for 1856: App. 2. 1857. Guatemala, British Honduras.
198. P. CARIOANA Wittm. Bot. Jahrb. 14, Beibl. 32:4. 1891. P. cariovana Mez in DC. Mon. Phan. 9:461. 1896. Guatemala.
199. P. MEMBRANIFOLIA Baker, Handb. Bromel. 109. 1889. Costa Rica.
200. P. DENSIFLORA Brongn. ex Lem. Hortic. Univ. 6:228. 1845. P. aurantiaca Tenore, Ann. Sci. Nat. ser. 4, 2:378. 1854. Phlomostachys densiflora Beer, Bromel. 46. 1857. Lamproconus aurantiacus E. Morr. ex Baker, Handb. Bromel. 114. 1889, nomen. Mexico.
201. P. OCHROLEUCA (Koch & Bouché) Baker, Journ. Bot. 19:306. 1881. Neumannia ochroleuca Koch & Bouché in K. Koch, Ind. Sem. Hort. Berol. for 1856: App. 2. 1857. Central America or Mexico?
202. P. THEAE Mez in DC. Mon. Phan. 9:376. 1896. Costa Rica.
203. P. SAXICOLA L. B. Smith, Contr. Gray Herb. 117:29. 1937. P. fulgens A. Dietr. Allgem. Gartenzeit. 19:137. May 3, 1851, non Dietr. 1837, nec Dcne. Jan. 1851. P. splendens Warsc. ex A. Dietr. Allgem. Gartenzeit. 19:176. May 31, 1851, non Poir. 1836. P. ovandensis Matuda, An. Inst. Biol. Mexico 23, nos. 1 & 2:90. 1953. P. lymanii Matuda, op. c. 99. Guatemala, Mexico.
204. P. PURPUSII L. B. Smith, Contr. Gray Herb. 117:27, pl. 2, figs. 20, 21. 1937. Mexico.
205. P. CALDERONII Standley & Smith in L. B. Smith, Contr. Gray Herb. 98:8, pl. 3, figs. 1, 2. 1932. Honduras, Salvador, Guatemala.
206. P. ROSEANA L. B. Smith, Contr. Gray Herb. 117:27, pl. 2, figs. 22, 23. 1937. Mexico.
207. P. MICHELIANA André, Rev. Hortic. 73:576, pl. 1901. Mexico.
208. P. CYLINDROSTACHYA L. B. Smith, Contr. Gray Herb. 117:25, pl. 2, figs. 14, 15. 1937. Mexico.
209. P. LEPROSA L. B. Smith, Contr. Gray Herb. 161:33, pl. 4, fig. 4. 1946. Mexico.
210. P. MODESTA L. B. Smith, Phytologia 7:417, pl. 1, figs. 1, 2. 1961. Mexico.
211. P. TUERCKHEIMII Donn. Smith, Bot. Gaz. 13:190. 1888. Guatemala.
- Var. a. TUERCKHEIMII. Leaf-blades 10 mm wide; axis of the inflorescence slender, sparsely floccose; floral bracts exceeding the pedicels; sepals 25-30 mm long, obscurely carinate toward base.
- Var. b. MACROLEPIS L. B. Smith, Lilloa 6:383, pl. 1, figs.

5, 6. 1941. Leaf-blades to 22 mm wide; axis of the inflorescence stout, densely white-floccose; floral bracts much exceeding the pedicels; sepals to 33 mm long, alate-carinate at base.

212. *P. HINTONIANA* L. B. Smith, Contr. Gray Herb. 114:7, pl. 1, figs. 8, 9. 1936. Mexico.

213. *P. MOOREANA* L. B. Smith, Contr. U. S. Nat. Herb. 29:523, fig. 79. 1954. Mexico.

214. *P. FLEXUOSA* L. B. Smith, Contr. Gray Herb. 114:6, pl. 1, fig. 7. 1936. Mexico.

215. *P. PALMERI* S. Watson, Proc. Am. Acad. 22:456. 1887. Mexico.

Var. a. *PALMERI*. *Tillandsia secunda* Sessé & Moc. Fl. Mex. ed. 2, 81. 1894. Floral bracts about half as long as all but the lowest pedicels.

Var. b. *LONGEBRACTEATA* L. B. Smith, Wrightia 2:64. 1960. Floral bracts elongate, equaling or exceeding all of the pedicels

216. *P. PUBERULA* Mez & Smith ex Donn. Smith, Bot. Gaz. 19:264. 1894. Guatemala.

217. *P. TILLANDSIOIDES* L. B. Smith, Contr. Gray Herb. 161:35, pl. 4, fig. 7. 1946. Mexico.

218. *P. SCHIEDEANA* Baker, Handb. Bromel. 95. 1889. Mexico.

219. *P. PTEROPODA* L. B. Smith, Contr. Gray Herb. 117:26, pl. 2, fig. 19. 1937. Mexico.

220. *P. MICROPODA* L. B. Smith, sp. nov. Ab omnibus speciebus adhuc cognitis foliis majoribus deciduis, scapo brevissimo sed inflorescentia elongata differt.

Stemless, flowering 16 cm high; leaves bulbous-rusulate, evidently all alike; sheaths ovate, ca. 3 cm long, dark castaneous at least toward apex, entire; blades deciduous, unknown above the abscission line, the base 7 mm wide, pale-lepidote beneath, spinose-serrate; scape very short, hidden by the leaf-bases; scape-bracts densely imbricate, lanceolate, acuminate; inflorescence simple, subax, glabrous; axis slender; floral bracts ovate, acuminate, to 28 mm long, much exceeding all the pedicels, entire, thin; flowers secund, subspreading at anthesis; pedicels slender, subterete, to 6 mm long; sepals linear-lanceolate, acuminate, 24 mm long, alate-carinate; petals 35 mm long, naked, red; ovary more than 1/2 superior. Pl. I, fig. 14: Flower x 1/2; fig. 15: Sepal x 1.

MEXICO: México: Dist. Temascaltepec: On cliffs, Puerto Salitre, alt. 1300 m, February 7, 1932, G. B. Hinton, no. 936 (US, type).

221. *P. KARWINSKYANA* Schult. in R. & S. Syst. 7, pt. 2:1239. 1830. *P. jaliscana* S. Watson, Proc. Am. Acad. 22:456. 1887. Mexico.

222. *P. MILITARIS* L. B. Smith, Contr. Gray Herb. 161:34, pl. 4, fig. 5. 1946. Mexico.

223. *P.* (subgenus ?) *FOLIACEA* L. B. Smith, sp. nov. *P. sordida* L. B. Smith in systema mea proxima sed scapi bracteis inferioribus foliaceis perelongatis differt.

Short-caulescent, flowering 4 dm high; leaves subbulbous-rusulate; sheaths broadly ovate, ca. 2 cm long, dark castaneous;

blades dimorphic, some reduced to dark pectinate-serrate spines, others foliaceous, deciduous, linear, acuminate, slightly narrowed toward base, about equaling the inflorescence, 14 mm wide, sparsely white-flocculose at base, entire above the line of abscission; scape erect, slender, white-flocculose; scape-bracts erect, all exceeding the internodes, the lower foliaceous and equaling the leaves, the upper ovate, acuminate, scarcely larger than the floral bracts; inflorescence simple, laxly few-flowered, white-flocculose, the slender axis 7 cm long; floral bracts ovate, acuminate, to 22 mm long, much exceeding the slender terete 7 mm pedicels, entire; flowers suberect at anthesis, not secund; sepals linear-lanceolate, acuminate, 23 mm long, the posterior ones carinate at base; petals 5 cm long, naked, red; ovary 3/4 superior. Pl. I, fig. 16: Flower x 1/2; fig. 17: Sepal x 1.

MEXICO: Michoacan: Dist. Coalcoman: On tree, Naranjillo, alt. 1250 m, February 8, 1941, G. B. Hinton no. 15941 (US, type).

224. *P. SORDIDA* L. B. Smith, Contr. Gray Herb. 161:34, pl. 4, fig. 6. 1946. Mexico.

225. *P. MONTICOLA* Brandege, Zoe 5:197. 1905. Mexico.

226. *P. RINGENS* Kl. ex Lk., Kl. & Otto, Ic. Pl. Rar. 63, pl. 25. 1842. *P. latifolia* Wendl. Hort. Herrenh. 1:5, pl. 3. 1798, non Ait. 1789, cf. Mez in Pflanzenreich 4, Fam. 32:266. 1935. *P. montalbensis* hort. Linden ex Otto & Dietr. Allgem. Gartenzeit. 19:138. 1851. *P. warszewitziana* Kl. ex Beer, Bromel. 66. 1857. *P. karwinskyana* Beer, Bromel. 161. 1857. *P. fulgens* hort. ex Baker, Handb. Bromel. 101. 1889, nomen. Mexico.

227. *P. CHIAPENSIS* Miranda, An. Inst. Biol. Mexico 24: [69], fig. 1. 1953. Mexico.

228. *P. OAXACANA* L. B. Smith, Contr. Gray Herb. 117:25, pl. 2, figs. 16, 17. 1937. Mexico.

229. *P. SECUNDIFLORA* L. B. Smith, Contr. Gray Herb. 114:7, pl. 1, figs. 1, 2. 1936. Mexico.

230. *P. CARNEA* Beer, Oesterr. Bot. Zeitschr. 8:182. 1858. *Puya carnea* Regel, Cat. Pl. Hort. Aksak. 117. 1860. Panama.

231. *P. XANTHOCALYX* Mart. Hort. Monac. Sem. for 1848:4. 1848; Linnaea 24:195. 1851. *P. sulphurea* sensu K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 5. 1858, non Andr. 1802. *P. flavescens* Baker, Bot. Mag. 103:pl. 6318. 1877, non K. Koch, 1858. Mexico.

West Indies
(cf. no. 71)

232. *P. SAMUELSSONII* L. B. Smith, Contr. Gray Herb. 117:28, pl. 2, figs. 24-26. 1937. *P. xanthocalyx* sensu Mez in Urb. Symb. Ant. 8:87. 1920, non Mart. 1848. Hispaniola.

233. *P. BROMELIIFOLIA* L'Hérit. Sert. Angl. 7. 1789. *Hepetis angustifolia* Sw. Prodr. 56. 1788, non *Pitcairnia angustifolia* Ait. 1789. *H. bromeliifolia* Salisb. Prodr. 247. 1796. *Pitcairnia redouteana* Beer, Bromel. 57. 1857, non Schult. 1830. Jamaica.

234. *P. ANGUSTIFOLIA* [Soland. in] Ait. Hort. Kew. 1:401. 1789. *P. angustifolia* Redouté, Lil. 2:pl. 76. 1804, non Ait. 1789. *P.*

furfuracea sensu Jacq. f. Eclog. Pl. 1:117. 1815, non Willd. 1809
P. ramosa Jacq. f. Eclog. Pl. 1:154. 1816. P. tomentosa Dietr.
 Lex. Nachtr. 6:305. 1820, nomen; Dietr. ex Beer, Bromel. 64. 1857
P. redouteana Schult. in R. & S. Syst. 7, pt. 2:1243. 1830. P.
angustifolia Ryan ex Schult. l. c., nomen. P. ramosa K. Koch,
 Ind. Sem. Hort. Berol. for 1857:App. 5. 1858, non Jacq. 1816. P.
intermedia hort. ex K. Koch, l. c. P. skinneri hort. ex K. Koch,
 l. c. P. alta sensu Mez in DC. Mon. Phan. 9:406. 1896, non
 Hassk. 1856. Hepetis angustifolia sensu Mez, op. c. 973, non Sw.
 1788. Puerto Rico, Lesser Antilles.

235. P. FUERTESII Mez, Fedde Rep. Spec. Nov. 12:415. 1913. P.
tomentosa sensu Mez in DC. Mon. Phan. 9:389. 1896, non Dietr. ex
 Beer 1857. P. fulgens Mez in Urb. Symb. Ant. 8:87. 1920,
 non Dcne. ex Dietr. 1851. Dominican Republic.

236. P. GRACILIS Mez in DC. Mon. Phan. 9:407. 1896. Lesser
 Antilles.

237. P. JIMENEZII L. B. Smith, Phytologia 7:1, pl. 1, figs.
 3-5. 1959. Dominican Republic.

238. P. PLATYPHYLLA Schrad. Blumenb. 26. 1827. P. bromelii-
folia sensu Ait. Hort. Kew. 1:401. 1789, non L'Hérit. 1789. P.
latifolia Andr. Bot. Repos. 5:pl. 322. 1803, non Ait. 1789.
 Jamaica.

239. P. CUBENSIS (Mez) L. B. Smith, Contr. Gray Herb. 117:24,
 pl. 2, figs. 12, 13. 1937. P. latifolia var. cubensis Mez in DC.
 Mon. 9:396. 1896. Cuba.

240. P. LATIFOLIA Ait. Hort. Kew. 1:401. 1789. Hepetis lati-
folia Raeuschel ex Schult. in R. & S. Syst. 7, pt. 2:1247. 1830,
 nomen. Billbergia latifolia hort. Belg. ex Heynh. Nom. 2:69.
 1846, nomen. Pitcairnia furfuracea Beer, Bromel. 59. 1857. P.
latifolia Jacq. ex Beer, op. c. 61. P. alta sensu Baker, Bot.
 Mag. 108:pl. 6606. 1882, non Hassk. 1856. Hepetis pyramidata
 Rich. ex Baker, Handb. Bromel. 92. 1889, nomen. Puerto Rico (?),
 Lesser Antilles.

241. P. SPICATA (Lam.) Mez in DC. Mon. Phan. 9:392. 1896.
 Lesser Antilles.

Var. a. SPICATA. Bromelia spicata Lam. Encycl. 1:146. 1783.
Pitcairnia latifolia Redouté, Lil. pl. 74. 1804, non Ait. 1789.
P. bracteata α. Ait. Hort. Kew. ed. 2, 2:202. 1811. P. racemosa
 Woodf. ex Schult. in R. & S. Syst. 7, pt. 2:1245. 1830, nomen.
P. fulgens Dcne. ex A. Dietr. Allgem. Gartenzeit. 19:25. 1851.
P. gireoudiana A. Dietr. Allgem. Gartenzeit. 21:105. Ap. 1853.
P. bracteata var. fulgens Regel, Gartenfl. 2:163. 1853. Bill-
bergia bifrons Lindl. Journ. Hort. Soc. London 8:54. June 1853.
P. bracteata var. gireaudiana Beer, Bromel. 51. 1857. Billbergia
pyramidata Beer, op. c. 123. Pitcairnia commutata Regel, Garten-
 fl. 16:289. 1867. P. bracteata var. commutata Regel, op. c. 17:
 8. 1868. Petals red.

Var. b. SULPHUREA (Andr.) Mez in DC. Mon. Phan. 9:393. 1896.
P. sulphurea Andr. Bot. Repos. 4:pl. 249. 1802. P. bracteata β.
 Ait. Hort. Kew. ed. 2, 2:202. 1811. P. bracteata β. sulphurea
 Ker-Gawl. Bot. Mag. 34:pl. 1416. 1811. Tillandsia vincentiense
 E. H. L. Krause, Beih. Bot. Centr. 32, pt. 2:337. 1914. Petals

yellow.

242. *P. ALBUCIFOLIA* Schrad. Blumenb. 24. 1827. ? *P. spec. fol. lineari-lanc.* etc. Voigt, Pl. Rar. Hort. Belved. in Sylloge 2:52. 1812 (?); cf. R. & S. Syst. 7, pt. 2:1250. 1830. *P. furfuracea* Sims, Bot. Mag. 53:pl. 2657. 1826, non Willd. 1809. *P. intermedia* hort. ex Sims, l. c. nomen. *P. ringens* sensu Beer, Bromel. 55. 1857, non Kl. 1842. *P. affinis* K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 5. 1858. *P. angustifolia* E. Morr. ex Baker, Handb. Bromel. 92. 1889, nomen. Lesser Antilles.

243. *P.* (subgenus ?) *GLYMIANA* K. Koch, Wochenschr. Gärtn. 11: 89. 1868. *Hechtia glymiana* K. Koch, op. c. 90, nomen. *Puya glymiana* K. Koch, l. c. nomen. *Pitcairnia firma* Baker, Journ. Bot. 19:268. 1881. *P. jacksoni* K. Koch ex Baker, l. c. nomen. West Indies (?).

244. *P. ELIZABETHAE* L. B. Smith, Bromel. Soc. Bull. 8:21, figs. 1958. Dominican Republic.

245. *P. DOMINGENSIS* L. B. Smith, sp. nov. *P. jimenezii* L. B. Smith in systema mea proxima sed foliorum laminis dimorphis differt.

Nearly stemless, flowering 6 dm high; leaves many in a fasciculate rosette, the larger ones to over 8 dm long; sheaths ovate, 3-5 cm long, dark castaneous, entire; blades dimorphic, some reduced to subulate entire dark spines, others foliaceous linear, long-acuminate, slightly narrowed toward base, 15-20 mm wide, glabrous, sparsely serrate toward base; scape erect, slender, sparsely white-flocculose; scape-bracts erect, the lower foliaceous and exceeding the internodes, the upper narrowly triangular, caudate-acuminate, shorter than the internodes; inflorescence simple, subdense at anthesis, sparsely white-flocculose, the axis 7 cm long; floral bracts like the upper scape-bracts, the lower much exceeding the pedicels, the upper shorter; pedicels slender, to 8 mm long; sepals linear, obtuse, 19 mm long, ecarinate; petals linear, obtuse, 4 cm long, red, bearing an oblong subtruncate 5 mm long scale at base; stamens included; ovary 5/8 superior; ovules caudate (?). Pl. I, fig. 18: Flower x 1/2; fig. 19: Sepal x 1.

DOMINICAN REPUBLIC: Samaná: Bahía de San Lorenzo, Bahía de Samaná, cultivated and flowered by L. Ariza Julia in 1961, J. J. Jiménez no. 4444 (US, type; hb. Jiménez, isotype).

Amazon-Orinoco Basin

246. *P. UNDULATA* Scheidw. Allgem. Gartenzeit. 10:275. 1842. *P. undulatifolia* hort. ex Lem. Fl. des Serres 2:sub pl. 162. 1846, nomen. *P. speciosissima* hort. ex Regel, Gartenfl. 23:1. 1874, nomen. *Lamproconus undulatus* Lem. Jard. Fleur. 2:sub pl. 127. 1852. Amazonian Brazil (?).

247. *P. EGLERI* L. B. Smith, Phytologia 8:228, pl. 2. figs. 11-14. 1962. Brazil: Pará.

Planalto of Brazil

248. *P. ULEI* L. B. Smith, Bol. Mus. Nac. Rio de Janeiro n. sér. no. 15:5, pl. 1, figs. h-j. 1952.
249. *P.* (subgenus ?) *ANTHERICOIDES* Mez in Mart. Fl. Bras. 3, pt. 3:441. 1894.
250. *P. TORRESIANA* L. B. Smith, Bol. Mus. Nac. Rio de Janeiro n. sér. no. 15:4, pl. 1, figs. f, g. 1952.
251. *P. DECIDUA* L. B. Smith, Arquiv. Bot. Estado São Paulo n. ser. 1:110, pl. 114. 1943.
252. *P. GLAZIOVII* Baker, Handb. Bromel. 92. 1889.
253. *P. LANCIFOLIA* Mez in Mart. Fl. Bras. 3, pt. 3:447. 1894.
 Var. a. *LANCIFOLIA*. Sepals 35 mm long.
 Var. b. *MINOR*. L. B. Smith, Bol. Mus. Nac. Rio de Janeiro n. sér. no. 15:4. 1952. Sepals 24 mm long.
254. *P. ENCHOLIRIOIDES* L. B. Smith, Arquiv. Jard. Bot. Rio de Janeiro 10:146, fig. 6. 1950.
255. *P. CARINATA* Mez in Mart. Fl. Bras. 3, pt. 3:448. 1894.
P. morelii sensu Baker, Handb. Bromel. 103. 1889, in part, non Lem. 1846.
256. *P. FLAMMEA* Lindl. Bot. Reg. 13:pl. 1092. 1827.
 Var. a. *FLAMMEA*. ? *Tillandsia laevis* Vell. Fl. Flum. 133. 1825; Icon. 3:pl. 126. 1835, non *Pitcairnia laevis* Willd. 1830.
P. olfersii Link, Verh. Gartenbauver. Berlin 7:363, pl. 3. 1831.
 ? *P. fulgens* Poit. Rev. Hort. 3:157. Jan. 1836; Mez in DC. Mon. Phan. 9:430. 1896. *P. morelii* Lem. Hort. Univ. 7:231, pl. 1846. *P. fulgens* Dcne. in Cat. Linden 18. 1850; Dcne. ex A. Dietr. Allgem. Gartenzeit. 19:137. 1851. ? *P. rubicunda* K. Koch & Bouché, Ind. Sem. Hort. Berol. for 1856:App. 3. 1857. ? *P. moreliana* hort. ex K. Koch & Bouché, l. c., nomen. ? *P. laevis* Beer, Bromel. 60. 1857. *P. decaisnei* K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 5. 1858. ? *P. l'herminieri* hort. Paris ex K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 8. 1858. *P. roezlii* sensu Baker, Bot. Mag. 117:pl. 7175. 1891, non E. Morr. 1885. ? *P. amaryllidiflora* hort. ex Gentil, Pl. Cult. Serres Brux. 153. 1907, nomen, cf. Mez in Pflanzenreich 4, Fam. 32:260. 1935. ? *P. mordii* hort. ex Gentil, l. c. Leaf-blades mostly 20-36 mm wide, covered beneath with spreading scales; axis of the inflorescence glabrous, usually turning black on drying.
 Var. b. *ROEZLII* (E. Morr.) L. B. Smith, Arquiv. Bot. Estado São Paulo n. ser. 1:111. 1943. *P. roezlii* E. Morr. Belg. Hort. 35:285, pls. 18, 19. 1885. *P. hypoleuca* Mez in Mart. Fl. Bras. 3, pt. 3:458. 1894. Leaf-blades mostly 20-36 mm wide, covered beneath with spreading scales; axis of the inflorescence lepidote, usually remaining pale.
 Var. c. *CORCOVADENSIS* (Wawra) L. B. Smith, Arquiv. Bot. Estado São Paulo n. ser. 1:112. 1943. *P. corcovadensis* Wawra, Oesterr. Bot. Zeitschr. 12:384. 1862. Leaf-blades glabrous; inflorescence lax, few-flowered, remaining pale; axis glabrous.
 Var. d. *GLABRIOR* L. B. Smith, Arquiv. Bot. Estado São Paulo n. ser. 1:112. 1943. ? *P. cinnabarina* A. Dietr. Allgem. Gartenzeit. 18:202. 1850. ? *P. australis* K. Koch, Ind. Sem. Hort. Berol. for

1856:App. 4. 1857. Leaves glabrous; inflorescence dense at least toward apex, many-flowered, remaining pale; axis glabrous; petals red.

Var. e. PALLIDA L. B. Smith, Arquiv. Bot. Estado São Paulo n. ser. 1:112, pl. 115. 1943. Leaves glabrous; inflorescence dense at least toward apex, many-flowered, remaining pale; axis glabrous; petals yellowish white.

Var. f. FLOCCOSA L. B. Smith, Arquiv. Bot. Estado São Paulo n. ser. 1:112. 1943. P. muscosa Mart. in R. & S. Syst. 7, pt. 2: 1240. 1830. P. selloana Baker, Handb. Bromel. 100. 1889. P. dietrichiana Wittm. Bot. Jahrb. 13, Beibl. 29:15. 1891. P. pruinosa Mez in Mart. Fl. Bras. 3, pt. 3:454. 1894, non H.B.K. 1816. P. claussenii Mez, l. c. P. selloviana Mez in DC. Mon. Phan. 9: 433. 1896. P. weddelliana Mez in DC. Mon. Phan. 9:434. 1896, non Baker 1889. P. minarum Mez in Pflanzenreich 4, Fam. 32:636. 1935. Leaf-blades less than 20 mm wide, lepidote; inflorescence remaining pale; axis lepidote.

257. P. ALBIFLOS Herb. Bot. Mag. 53:pl. 2642. 1826. Tillandsia schuechii Beer & Fenzl, Allg. Gartenzeit. 14:265. 1846. P. odorata hort. ex Beer & Fenzl, op. c. 266, nomen. P. elata Liebm. Ind. Sem. Hort. Haun. 14. 1849. Cochliopetalum albiflos Beer, Bromel. 68. 1857. C. flavescens Beer, op. c. 69. C. schuechii Beer, l. c. Pitcairnia flavescens hort. ex Beer, l. c., nomen; K. Koch, Ind. Sem. Hort. Berol. for 1857:App. 9. 1858. Cochliopetalum odoratum Hemsl. Biol. Centr.-Am. Bot. 3:317. 1884, nomen, erroneously attributed to Beer. P. xanthocalyx sensu Baker, Handb. Bromel. 107. 1889, in part, as to Cochliopetalum flavescens Beer.

258. P. STAMINEA Lodd. Bot. Cab. 8:pl. 722. 1823. P. speciosa hort. Lovan ex Schult. in R. & S. Syst. 7, pt. 2:1250. 1830, nomen; cf. Mez in Pflanzenreich 4, Fam. 32:262. 1935. Cochliopetalum stamineum Beer, Bromel. 70. 1857. Orthopetalum stamineum Baker, Handb. Bromel. 97. 1889, nomen attributed to Beer. Pitcairnia canaliculata Baker, op. c. 99. P. longicauda Hornem. ex Mez in Mart. Fl. Bras. 3, pt. 3:445. 1894. P. staminea var. longicauda Mez in DC. Mon. Phan. 9:439. 1896, attributed to Hornem.

259. P. BEYCALEMA Beer, Bromel. 63. 1857. P. muscosa sensu Hook. Bot. Mag. 80:pl. 4770. 1854, non Mart. 1830. P. leiolema hort. ex Beer, Bromel. 62. 1857, nomen.

260. P. SUAVEOLENS Lindl. Bot. Reg. 13:pl. 1069. 1827. P. odorata Wawra, It. Sax.-Cob. 174. 1883.

West Africa

261. P. FELICIANA (Aug. Chevalier) Harms & Mildbr. Notizblatt 14:118. 1938. Willrussellia feliciana Aug. Chevalier, Bull. Soc. Bot. France 84:503, fig. 1. 1937. (French Guinea).

EXCLUDED AND DOUBTFUL TAXA

262. P. alpestris (Poepp. & Endl.) L. H. Bailey, Cyclop. Am. Hort. 1359. 1901 = PUYA ALPESTRIS Poepp. & Endl.

263. *P. bangii* Baker, Mem. Torrey Bot. Club 6:124. 1896 = *PUYA STENOTHYRSA* (Baker) Mez.
264. *P. brachiata* Cham. in Link, Jahrb. 1, pt. 2:192. 1820, nomen, Unknown.
265. *P. brachystachya* Baker, Handb. Bromel. 118. 1889 = *PUYA BRACHYSTACHYA* (Baker) Mez.
266. *P. brevifolia* (Griseb.) R. E. Fries, Nov. Act. Reg. Soc. Sci. Upsal. ser. 4, 1, pt. 1:73. 1905 = *ABROMEITIELLA BREVIFOLIA* (Griseb.) Castellanos.
267. *P. brocchinia* D. Dietr. Syn. Pl. 2:1062. 1840 = *BROCCHINIA PANICULATA* Schult. f.
268. *P. bromeliifolia* var. *graminifolia* Griseb. Fl. Brit. W. Ind. 594. 1864. Unknown. No species known from Jamaica has entire leaves 4 lines (ca. 8 mm) wide.
269. *P. caerulea* - cf. *coerulea*.
270. *P. chilensis* Lodd. Cat. ex Loudon, Hort. Brit. 118. 1830, nomen = *PUYA CHILENSIS* Mol.
271. *P. chlorantha* (Spegazz.) Castellanos, Com. Mus. Nac. Buenos Aires 2:142. 1925 = *ABROMEITIELLA BREVIFOLIA* (Griseb.) Castellanos.
272. *P. chrysantha* Phil. Fl. Atacam. 50. 1860 = *DEUTEROCOHNIA CHRYSANTHA* (Phil.) Mez.
273. *P. ciliaris* hort. ex Pasq. Cat. Ort. Bot. Nap. 81. 1867, nomen. Unknown.
274. *P. coarctata* Pers. Syn. 1:344. 1805 = *PUYA CHILENSIS* Mol.
275. *P. coerulea* Benth. ex Baker, Handb. Bromel. 121. 1889 (first valid combination) = *PUYA COERULEA* Lindl.
276. *P. coerulea* sensu Baker, Handb. Bromel. 121. 1889, in part, as to *PUYA ALPESTRIS* (Poepp. & Endl.) Gay and its synonym, *P. whytei* Hook. f.
277. *P. crystalina* Pers. Syn. Pl. 1:344. 1805 = *PUYA LANUGINOSA* (R. & P.) Schult. f.
278. *P. darblayana* André, Rev. Hortic. 62:33, fig. 1890 = *P. CORALLINA* X *PANICULATA*.
279. *P. decora* hort. Linden ex Beer, Bromel. 108. 1857, nomen = *BILLBERGIA AMOENA* var. *MINOR* (Antoine & Beer ex Beer) L. B. Smith ?
280. *P. discolor* Loisel. Herb. Gen. Amat. 5:pl. 345. 1821 = *BILLBERGIA AMOENA* (Lodd.) Lindl. var. *AMOENA*.
281. *P. distachia* Beer, Bromel. 58. 1857 = *BILLBERGIA DISTACHIA* (Vell.) Mez var. *DISTACHIA*.
282. *P. dyckioides* Baker, Handb. Bromel. 118. 1889 = *PUYA DYCKIODES* (Baker) Mez
283. *P. elegans* Regel, Cat. Hort. Aksak. 112. 1860, nomen. Unknown.
284. *P. fastuosa* C. Morr. Ann. de Gand. 3:411, pl. 161. 1847 = *BILLBERGIA PYRAMIDALIS* (Sims) Lindl. var. *PYRAMIDALIS*.
285. *P. flabelliformis* hort. ex Gentil, Pl. Cult. Serres Jard. Bot. Brux. 153. 1907, nomen. Unknown.
286. *P. floccosa* Regel, Gartenfl. 23:307. 1874; Act. Hort. Petrop. 3:124. 1875 = *PUYA FLOCCOSA* (Linden) E. Morr.
287. *P. formosa* Mez in Pflanzenreich 4, Fam. 32:296, 654.

1935, erroneously attributed to Spegazzini = PUYA SPATHACEA (Griseb.) Mez.

288. P. furfuracea Willd. Enum. 1:346. 1809 = PUYA FURFURACEA (Willd.) L. B. Smith.

289. P. grandiflora Mez, Fedde Rep. Nov. Spec. 3:5. 1906, non Hook. 1861 = PUYA PITCAIRNIOIDES L. B. Smith.

290. P. guyanensis Baker, Handb. Bromel. 120. 1889 = PUYA FLOCCOSA (Linden) E. Morr.

291. P. humilis hort. ex Sweet, Hort. Brit. ed. 1, 425. 1827, nomen. Unknown.

292. P. iridiflora Beer, Bromel. 51. 1857. Description inadequate.

293. P. lanata F. G. Dietr. Lexicogr. Nachtr. 6:303. 1820 = PUYA LANATA (H.B.K.) Schult. f.

294. P. lorentziana Mez in DC. Mon. Phan. 9:373. 1896 = ABRO-MEITIELLA LORENTZIANA (Mez) Castellanos.

295. P. macrophylla Willd. ex R. & S. Syst. 7, pt. 2:1283. 1830 = AECHMEA LATIFOLIA (Willd. ex Schult.) Kl. ex Baker.

296. P. maronii André, Rev. Hort. 56:222. 1884; 57:108, fig. 1885 = P. CORALLINA X ALTENSTEINII.

297. P. media hort. ex Sweet, Hort. Brit. ed. 1, 425. 1827, nomen. Unknown.

298. P. megastachya Baker, Handb. Bromel. 120. 1889 = PUYA ROEZLII E. Morr.

299. P. meridensis hort. ex Baker, Handb. Bromel. 121. 1889, nomen = PUYA FLOCCOSA (Linden) E. Morr.

300. P. micrantha Lindl. Bot. Reg. 29:Misc. 44. 1843 = FOSTERELLA MICRANTHA (Lindl.) L. B. Smith.

301. P. monstrosa Beer, Bromel. 68. 1857. Description inadequate.

302. P. olivacea (Wittm.) Mez in Pflanzenreich 4, Fam. 32:247. 1935 = PUYA OLIVACEA Wittm.

303. P. pastoensis Baker, Handb. Bromel. 122. 1889 = PUYA LEHMANNIANA L. B. Smith.

304. P. pearcei Baker, Handb. Bromel. 120. 1889 = PUYA PEARCEI (Baker) Mez

305. P. penduliflora Mez in DC. Mon. Phan. 9:463. 1896 = GLO-MEROPITCAIRNIA PENDULIFLORA (Griseb.) Mez.

306. P. penduliflora A. Rich. in Sagra Hist. Cuba 11:262. 1850 = HOHENBERGIA PENDULIFLORA (A. Rich.) Mez.

307. P. philippii Baker, Handb. Bromel. 122. 1889 = PUYA VIOLACEA (Brongn.) Mez.

308. P. plumieri Baker, Handb. Bromel. 107. 1889 = GUZMANIA PLUMIERI (Griseb.) Mez.

309. P. pyramidata Link, Enum. 1:308. 1821, as to material, not as to basonym = PUYA FURFURACEA (Willd.) L. B. Smith.

310. P. pyramidata (R. & P.) Pers. Syn. Pl. 1:344. 1805 = PUYA PYRAMIDATA (R. & P.) Schult. f.

311. P. quetameensis Baker, Handb. Bromel. 121. 1889 = PUYA FLOCCOSA (Linden) E. Morr.

312. P. regia Witte, Tijdschr. Tuinb. Ed. Bos. 5:pl. 3, fig. 34. 1900; Gentil, Pl. Cult. Serres Jard. Bot. Brux. 152. 1907 =

P. CORALLINA X SPICATA.

313. *P. robusta* Rusby, Bull. New York Bot. Gard. 6:488. 1910 = PUYA SANCTAE-CRUCIS (Baker) L. B. Smith.

314. *P. rusbyi* Baker, Handb. Bromel. 122. 1889 = PUYA RUSBYI (Baker) Mez.

315. *P. sanctae-crucis* Baker, Handb. Bromel. 120. 1889 = PUYA SANCTAE-CRUCIS (Baker) L. B. Smith.

316. *P. secunda* F. G. Dietr. Lexicon. Nachtr. 6:301. 1820 = TILLANDSIA SECUNDA H.B.K.

317. *P. spathacea* Griseb. Goett. Abh. 24:329. 1879 = PUYA SPATHACEA (Griseb.) Mez.

318. *P. spathulata* hort. ex Lem. Fl. des Serres 3:pl. 227. 1847 = AECHMEA BASI-LATERALIS (Lem.) L. B. Smith

319. *P. sphaerocephala* Baker, Handb. Bromel. 123. 1889 = PUYA VENUSTA Phil.

320. *P. spinosa* Gill. ex Baker, Handb. Bromel. 136. 1889, nomen = DYCKIA FLORIBUNDA Griseb.

321. *P. splendens* Poir. in Rev. Hort. sér. 1, 3:157. 1836. Not understood. May equal PITCAIRNIA FLAMMEA var. GLABRIOR L. B. Smith.

322. *P. stenothyrsa* Baker, Handb. Bromel. 122. 1889 = PUYA STENOTHYRSA (Baker) Mez.

323. *P. stricta* André, Bromel. Andr. 31. 1889. Sterile, description inadequate.

324. *P. vallesoletana* Lexarza in La Llave & Lexarza, Nov. Veg. Descr. fasc. 1:19. 1824. Description inadequate. Probably related to *P. RINGENS* Kl.

325. *P. venusta* Baker, Handb. Bromel. 123. 1889 = PUYA VENUSTA Phil.

326. *P. violacea* Brongn. Ann. Fl. & Pom. ser. 3, 1:116. 1847; Allgem. Gartenzeit. 15:299. 1847 = PUYA VIOLACEA (Brongn.) Mez.

327. *P. virescens* K. Koch, Ind. Sem. Hort. Berol. for 1857: App. 4. 1858 = GUZMANIA VIRESCENS (Hook. f.) Mez.

328. *P. viridiflora* Regel, Ind. Sem. Hort. Petrop. for 1866: 81. 1867 = VRIESEA VIRIDIFLORA (Regel) Wittm. ex Mez.

329. *P. weddelliana* Baker, Handb. Bromel. 122. 1889 = PUYA WEDDELLIANA (Baker) Mez.

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Plate I

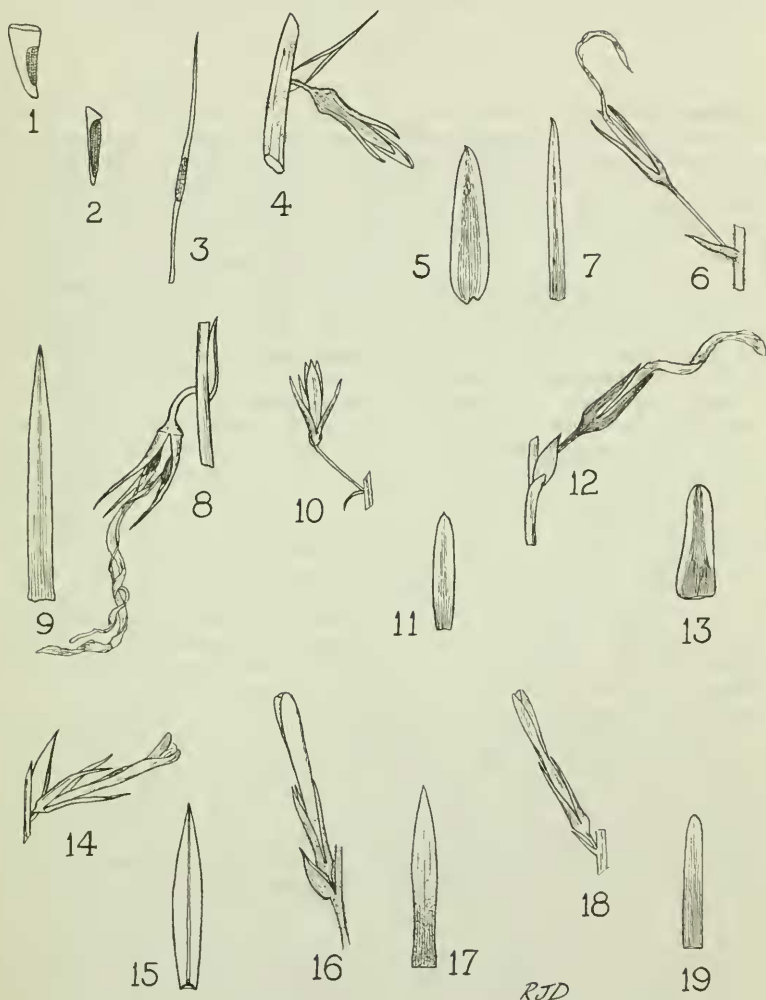


Fig. 1: *Pitcairnia caricifolia* (Holt & Blake 425); fig. 2: *P. angustifolia* (Cook & Collins 267); fig. 3: *P. paniculata* (Killip & Smith 25074); fig. 4-5: *P. vargasiana*; fig. 6-7: *P. halophila*; fig. 8-9: *P. decurvata*; fig. 10-11: *P. fractifolia*; fig. 12-13: *P. grubbiana*; fig. 14-15: *P. micropoda*; fig. 16-17: *P. foliacea*; fig. 18-19: *P. domingensis*.